SILVER ANNIVERSARY NUMBER

TEXTILE BULLETIN

VOL. 50 MARCH 5, 1936 NO. 1

Facts

you should know about——

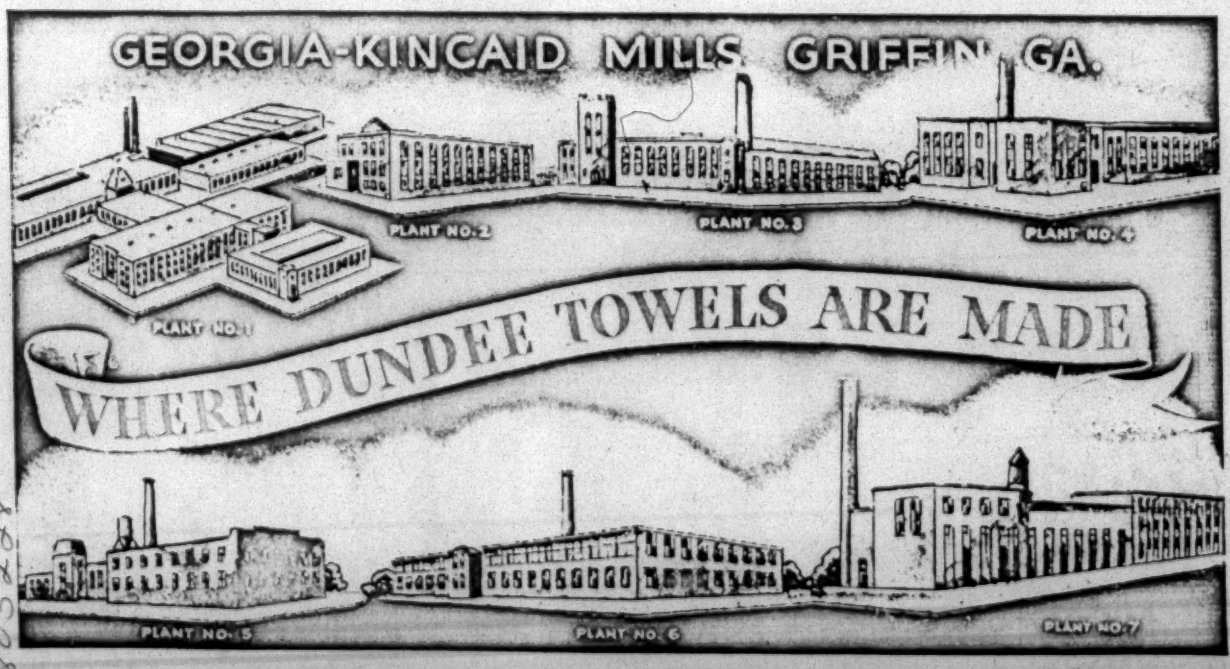
DUNDEE STANDS FOR DEPENDABLE VALUE— Every Dundee Towel, before it leaves the Mill, is subjected to thorough inspection. Because we know them to be First Quality, every Dundee Towel is properly identified.

Dundee Towels carry the Dundee trademark (Scotchman and castle) our symbol of dependability. The use of High Grade Cotton insures a High Standard of Quality. The loops are long and closely woven for greater absorbency. The firm construction prevents nap from parting. Guaranteed fast colors.

Hem and selvage are carefully finished to increase wear. After each tubbing they emerge softer and more fluffy than ever. There is a Dundee style for every towel requirement. Priced to fit thrifty household budgets. Yarn is spun in our own Mills. Made by one of the oldest and most dependable Towel Mills in the country.

You can Depend on DUNDEE

(*Established 1888*)



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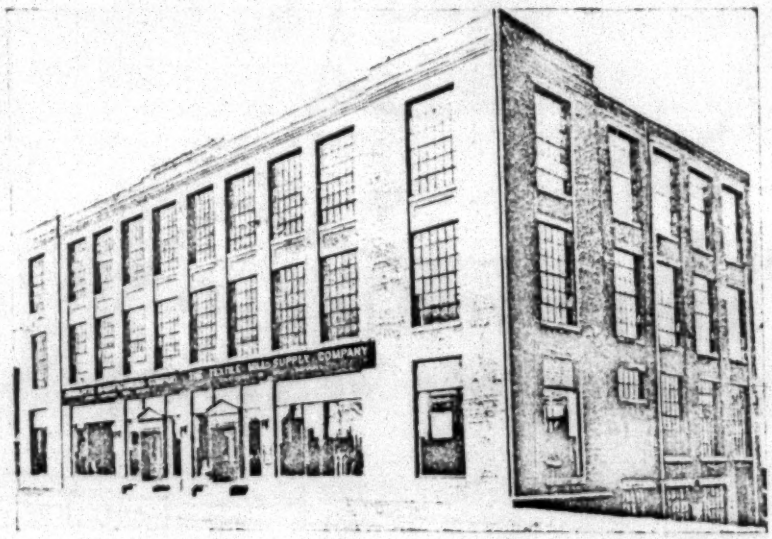
OUR 25TH ANNIVERSARY

CHARLOTTE MANUFACTURING COMPANY was established on March 18, 1911. Since that time we have found it necessary to enlarge the size of our plant on four successive occasions. This, we submit, is proof of the consistent quality of CHARLOTTE CARD CLOTHING and REEDS and the satisfactory service that goes with them.

We take this opportunity to thank Southern mill operating executives for the splendid patronage they have given us through these years and assure them we shall continue to offer the quality products and dependable service upon which the reputation of this company has been built.



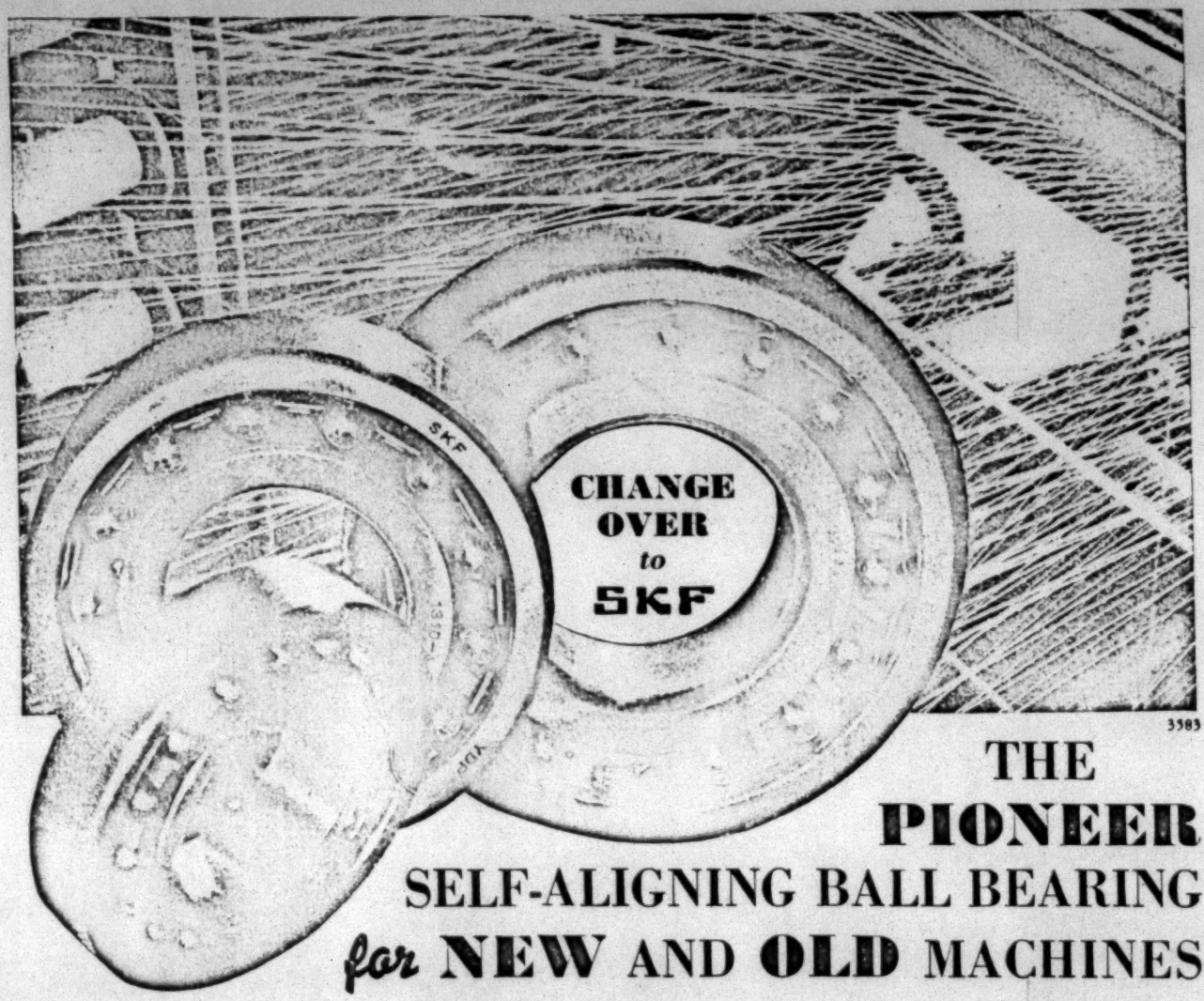
Charlotte Manufacturing Co.

Manufacturers of

CARD CLOTHING AND REEDS

Charlotte, N. C.

1911——A Quarter Century——1936



3583

THE PIONEER SELF-ALIGNING BALL BEARING for NEW AND OLD MACHINES

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Spinning Frames	☐	Line Shafting	☐
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Slashers	☐	Warpers	☐
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Looms	☐	Calenders	☐

Other applications_____

Name _____

*Mill Name*_____

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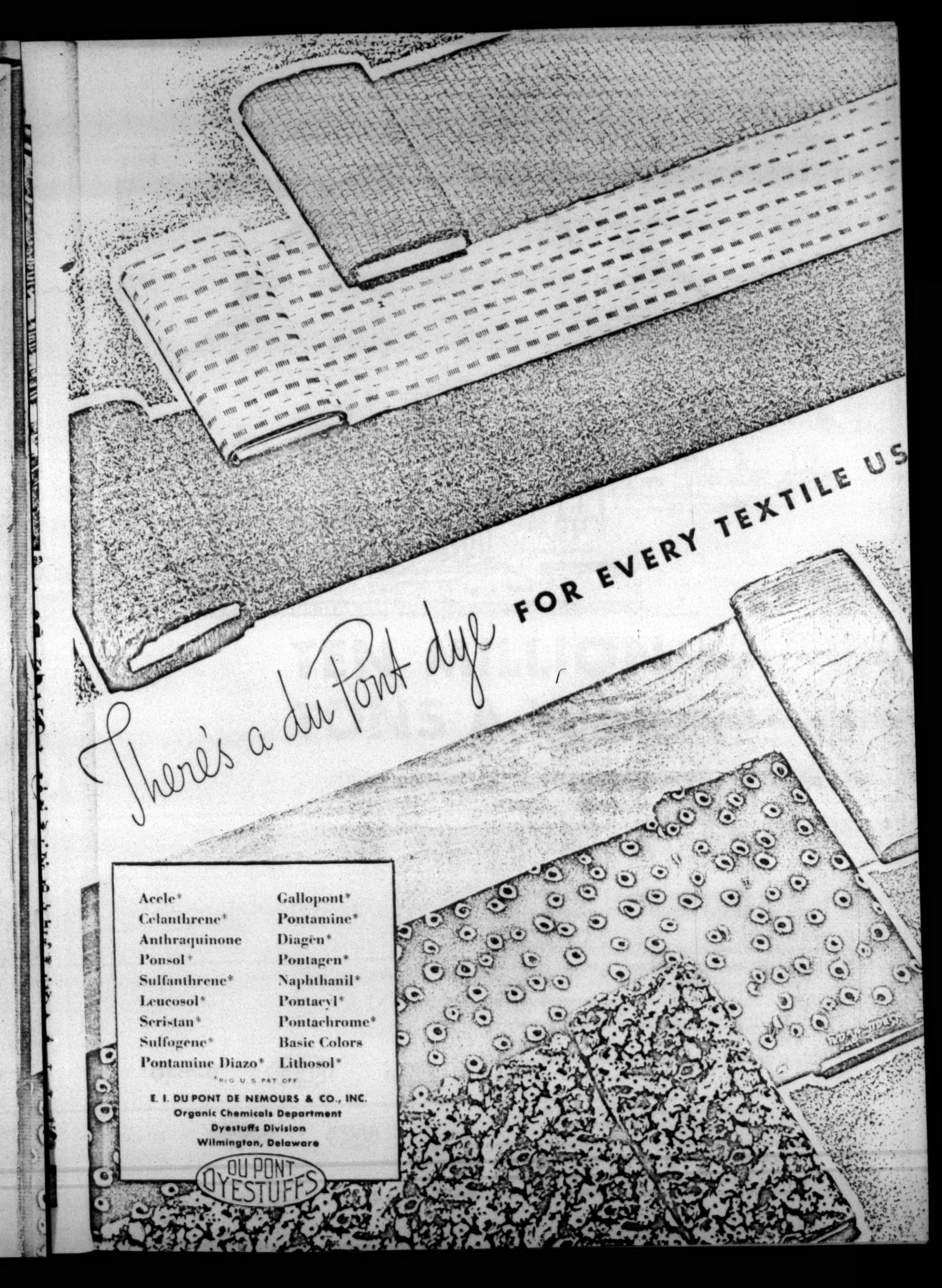
THIRTY years ago a textile man wrestled with the problem of making textile machinery more efficient. This was the problem then as it is today: putting new life into old machines and making new machines better. So he invented the SKF Self-Aligning Ball Bearing.

For more than a decade, SKF Bearings have been used to replace inefficient plain bearings, and to modernize textile machinery. Their inherent alignment compensates for shaft deflections due to settling floors, warping frames, and many small parts. And their dependability assures stronger, cleaner yarn ... longer life ... low maintenance. You can eliminate the cost of taking bearings out by putting SKF Bearings in.

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

SKF

BALL AND ROLLER BEARINGS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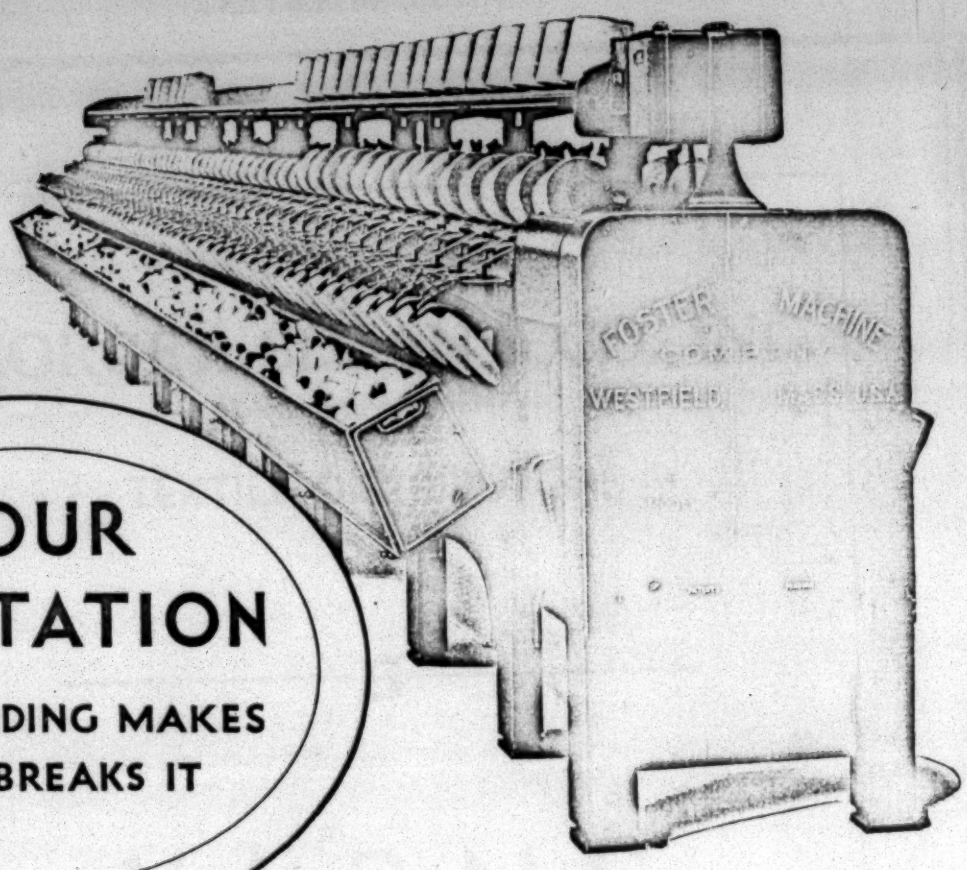


YOUR REPUTATION

CONE WINDING MAKES IT OR BREAKS IT

A reputation for quality is any spinner's biggest business asset. If YOU have such an asset, guard it well. If there is room for improvement in your case, it is none too soon to start NOW.

Whether your problem is to maintain or attain a reputation for quality, the Foster Model 102 Cone Winder can help you; for being the *last* process, cone winding is perhaps the most important operation in the mill.

The *appearance* of your cones determines a knitter's first impression, and first impressions, good or bad, are lasting. The *performance* of your cones on the knitting machine is your last chance to create future business.

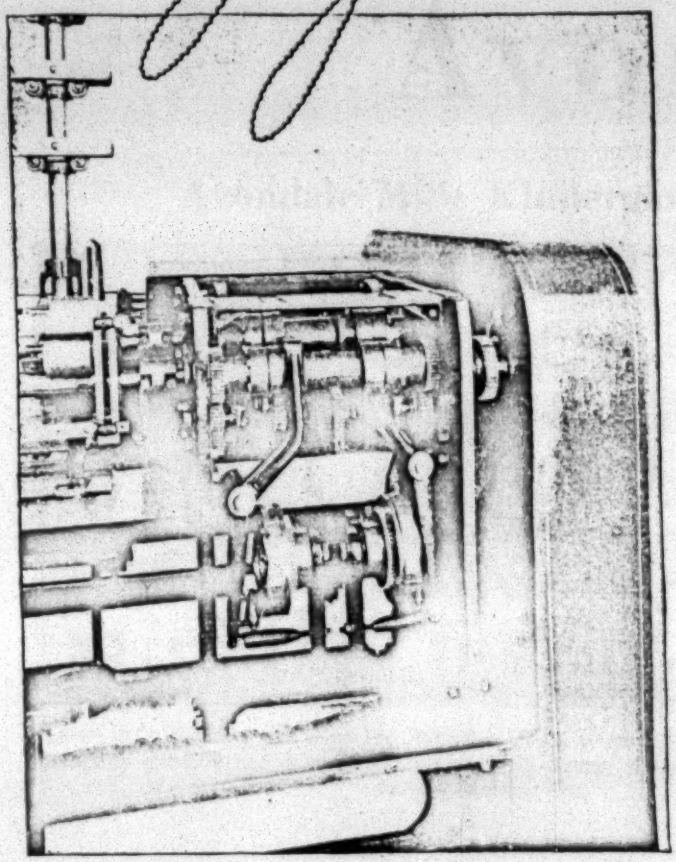
The Foster Model 102, properly adjusted and properly operated, practically guarantees both proper appearance of your cones and their proper performance on the knitting machines; and this at minimum cost to you. It retains all time proven features of older Foster models and offers important improvements, such as 100 per cent increase in production, more delicate manipulation of the yarn, additional slub catching and exact lay of the coils on the cone surface to reduce variation in tension at the knitting machine. In short, it makes Foster Cones, more than ever before, "standard for the knitting trade."

FOSTER MODEL 102

FOSTER MACHINE CO
WESTFIELD, MASS.

Standard for the Knitting Trade

NEW *Novelty Yarn* TWISTER



This twister is specially designed to make commercially the novelty and fancy yarns that are frequently required to produce certain style effects in fabrics. It has a wide range of adjustment and is provided with simple but effective means for producing practically any yarn combination and any type of fancy twist. Its mechanical features are as follows:—

1 Two lines of bottom rolls and two lines of top rolls.

2 These rolls can be automatically operated to intermittently stop and at the same time to operate at varying speeds.

3 All change gears are readily accessible.

4 Our patented reversible tape drive can be furnished with this machine, so that the twist can be readily changed. Only a few minutes are required to make the change.

5 The cams are very accessible and can be easily adjusted or changed.

6 Patented yarn controller guide.

H & B AMERICAN MACHINE CO.

COTTON PREPARATORY AND SPINNING MACHINERY

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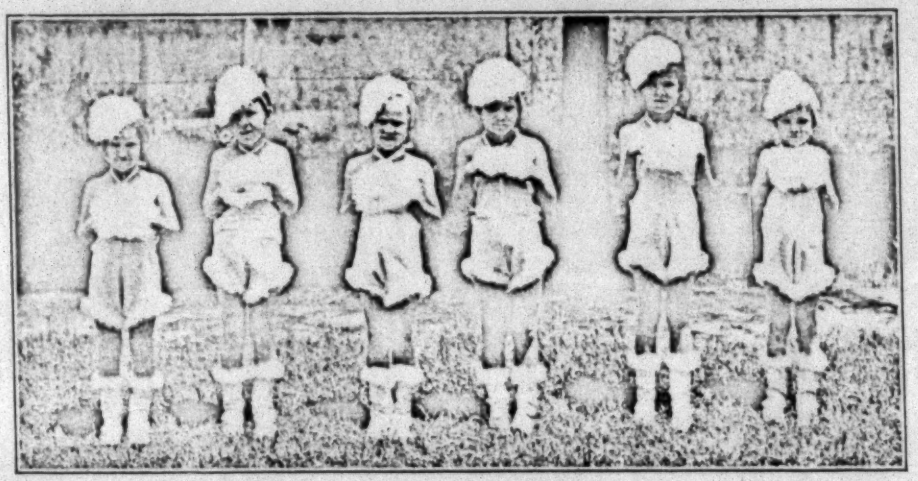
ATLANTA OFFICE, 815 The Citizens and Southern National Bank Building

Interesting Views of Avondale

Avondale Mills Kindergartners



These little Eskimos are from the Avondale Mills Kindergarten at Sylacauga. The company operates one or more kindergartens in charge of trained workers in each of its mill communities.

Junior High Graduation Class

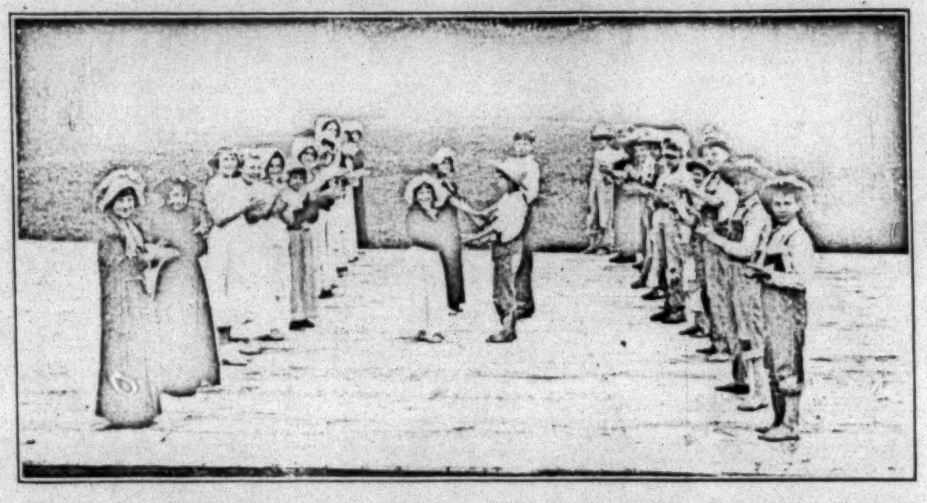
Here we have the graduates of the Avondale Mills Junior High School at Alexander City, Ala. The mills supplement school funds in all communities where they operate in order that a nine months term may be assured.

AVONDALE MILLS own and operate Mills at Birmingham, Sylacauga.

# of Community Life

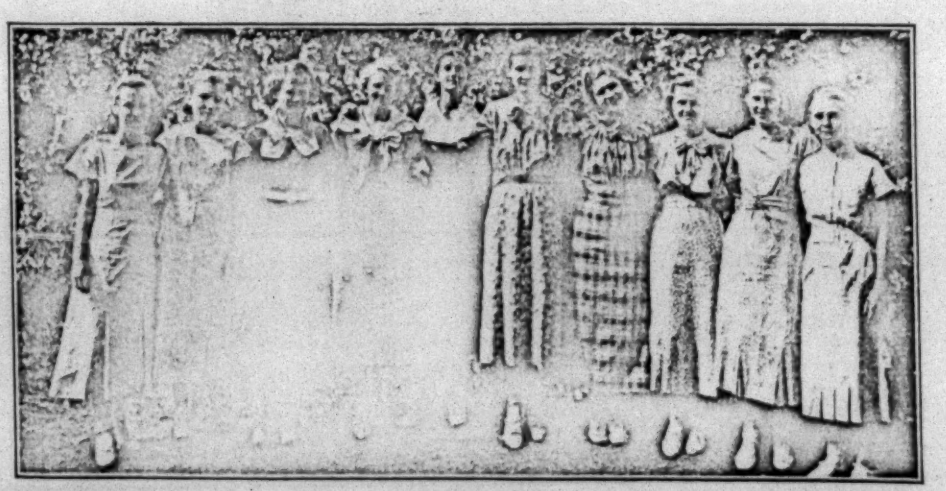
Mills of Sylacauga Alabama

Pop Goes The Weasel!



These young folks are at play in the beautiful Cowikee Mills Community Park at Eufaula, Ala., considered one of the prettiest spots in the State. Lighted at night, with hundreds of happy children playing and dancing to music by the company band, it is a sight never to be forgotten.

Domestic Science Class



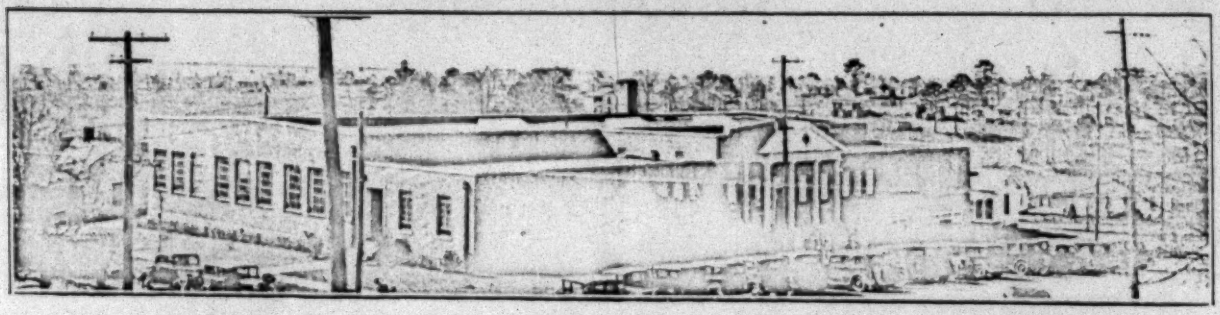
These young ladies are shown modeling school dresses which they made themselves in the Domestic Science Class at Avondale Mills, Sylacauga, Ala. They have learned how to make everything from street frocks to evening gowns.

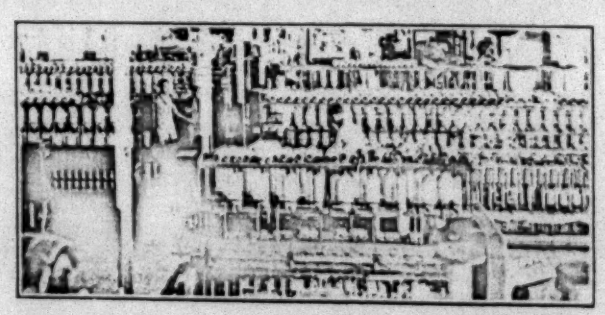
Alexander City, Sycamore, Pell City, Stevenson and La Fayette, Ala.

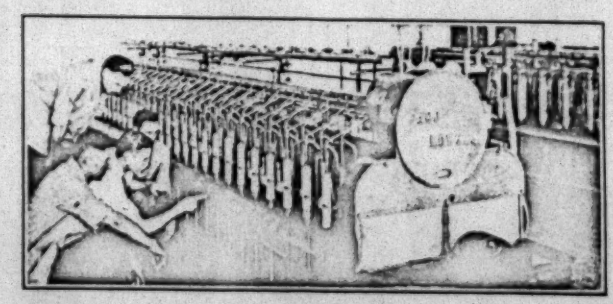
CALLAWAY MILLS

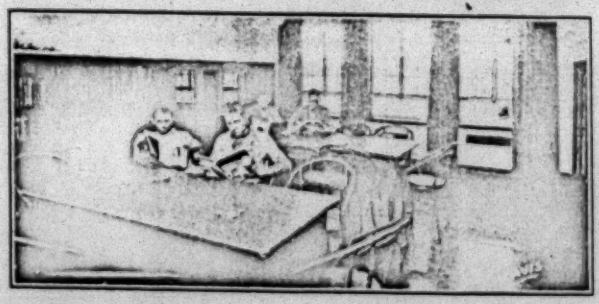
Vocational School and Testing Laboratory

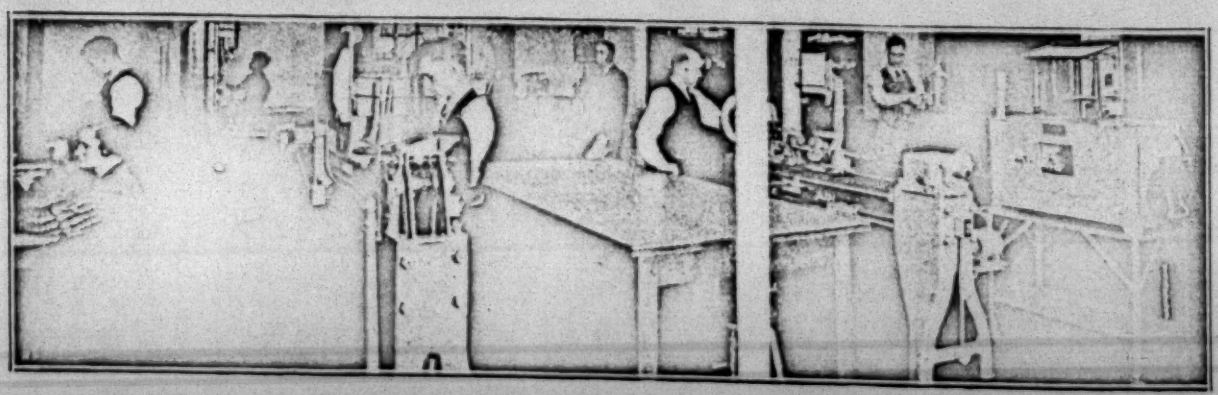
La Grange, Ga.





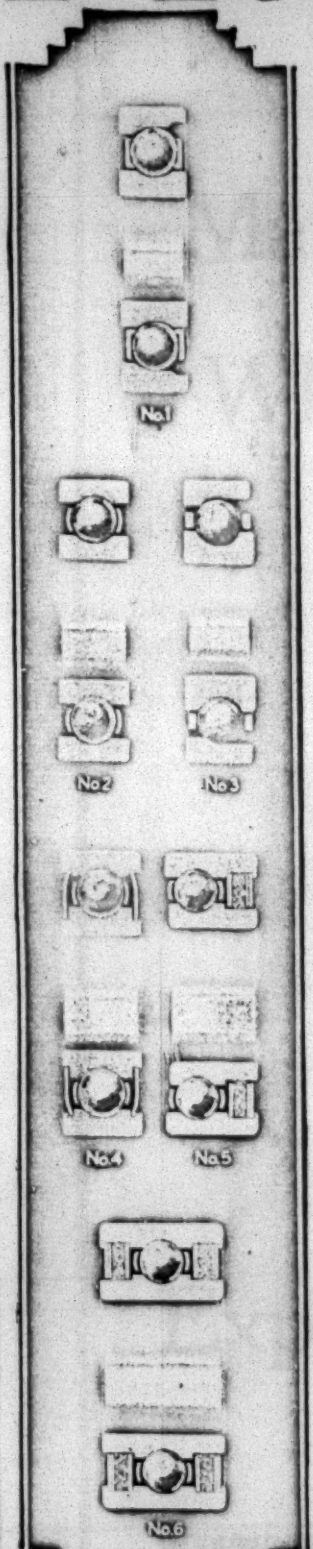






PRECISION

FOR PRODUCTION AT LOWER COST



This is the objective of every engineer and executive in the textile industry. This cost—as relating to machine equipment—includes power, lubrication, attendance, maintenance (repairs and replacements), and shut-down losses. In new equipment designed to conform with these high-economy standards, as well as in the modernizing of old equipment to the same end, *Norma-Hoffmann Precision Bearings* afford machine builders and textile engineers exceptional opportunities to realize savings on all the above cost items. They are finding increasing application in the textile industry because they provide the needed combination of load-ability, speed-ability and service-ability. In a wide range of equipment, *Precision Bearings* are demonstrating their ability to "stand up" under the heaviest and most difficult service. Their performance is proving that, for low cost per bearing per year of service, they are unsurpassed in the anti-friction bearing field.

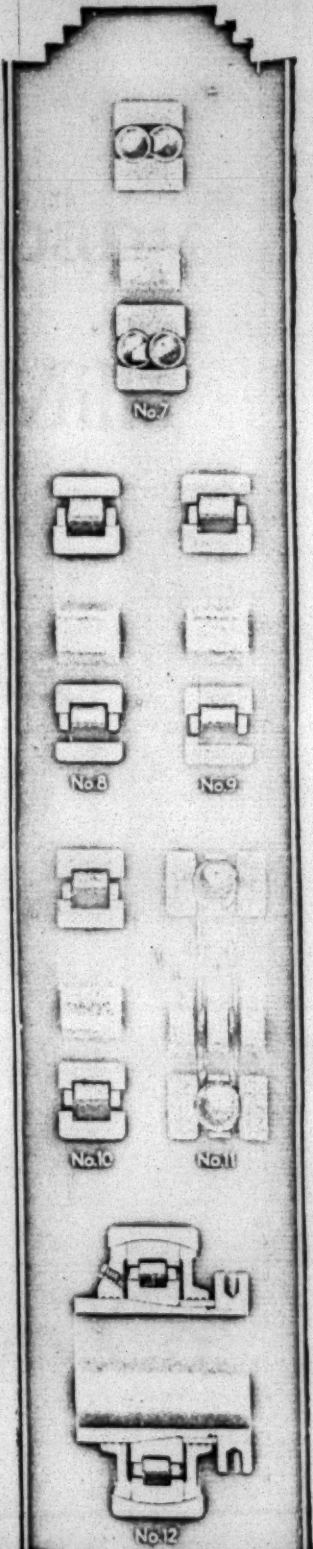
Applications of Precision Bearings in Textile Machinery

Agers	Looms	Spinning Machinery
Beaters	Mules	Spoolers
Breakers	Nappers	Tenters
Brushing Machines	Openers	Twisters
Calenders	Pickers	Warpers
Cards	Rayon Machinery	Washers
Drying Machines	Shears	Winders
Dyeing Machines	Silk Machinery	Wool and Worsted Machinery
Extractors	Slashers	
Garnetts		

Precision Bearings for Every Load, Speed and Duty

No one type of bearing is so versatile in its operating characteristics that it will meet all of the wide diversity of duties in the textile industries. From the comprehensive *Norma-Hoffmann* line, however—here illustrated in part, and briefly indexed—a *Precision* Bearing, or several in combination, can be chosen that will satisfy almost any conditions of operation.

1. Open (separable) type ball bearing.
2. Closed radial type ball bearing.
3. Angular contact ball bearing.
4. Plate (shielded) type ball bearing; available both with one and two grease-retaining, dirt-excluding side plates.
5. "GreaSeal" felt-protected ball bearing with single removable felt seal; available also with single felt seal and plate shield, fully enclosed.
6. "GreaSeal" double felt-protected ball bearing, fully enclosed, with double removable felt seal to exclude dirt and retain lubricant.
7. Double-row, self-aligning ball bearing; also furnished with adapter sleeve and nut.
8. Standard cylindrical roller bearing.
9. One-lipped cylindrical roller bearing.
10. Two-lipped cylindrical roller bearing; available also in "full" (cageless) type with retaining rings.
11. Ball thrust bearing.
12. Self-aligning adapter type cylindrical roller bearing, wholly enclosed to exclude dirt and retain lubricant.



Write for the Catalog. Let our engineers work with you.

NORMA-HOFFMANN BEARINGS CORPORATION
Stamford, Conn., U. S. A.

"NORMA-HOFFMANN"

BEARINGS

Greetings and Congratulations!

From a 50-Year-Old Company

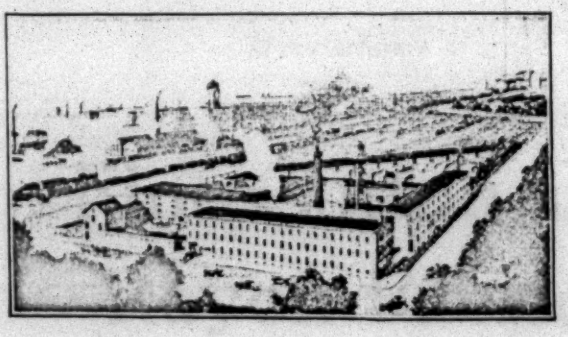
—TO—

Textile Bulletin and David Clark

ON THEIR

Silver Anniversary

Our Modern Plant



At Lawrence, Mass.

We are happy to honor a useful career and a constructive publication in which we have advertised for 25 years.

THE DAVID BROWN CO.

Founded 1883

Manufacturers of "HIGH GRADE" BOBBINS, SPOOLS, ROLLS, CONES, SKEWERS AND SHUTTLES

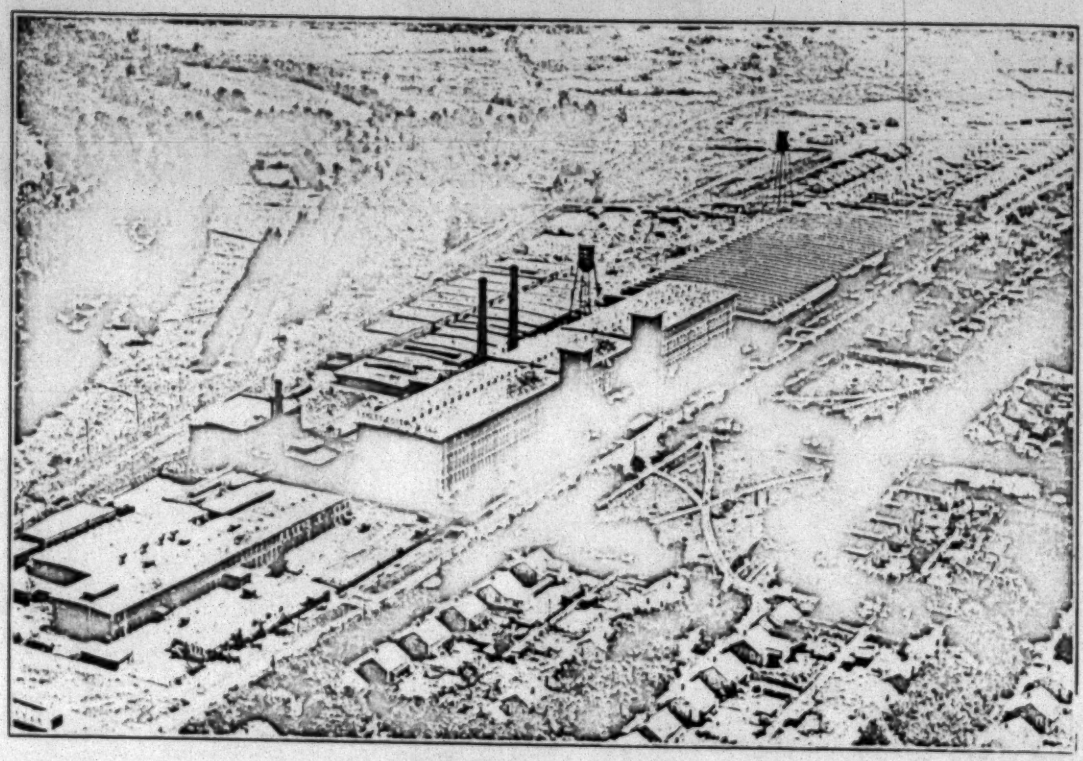
Main Factory and General Offices

LAWRENCE, MASS.

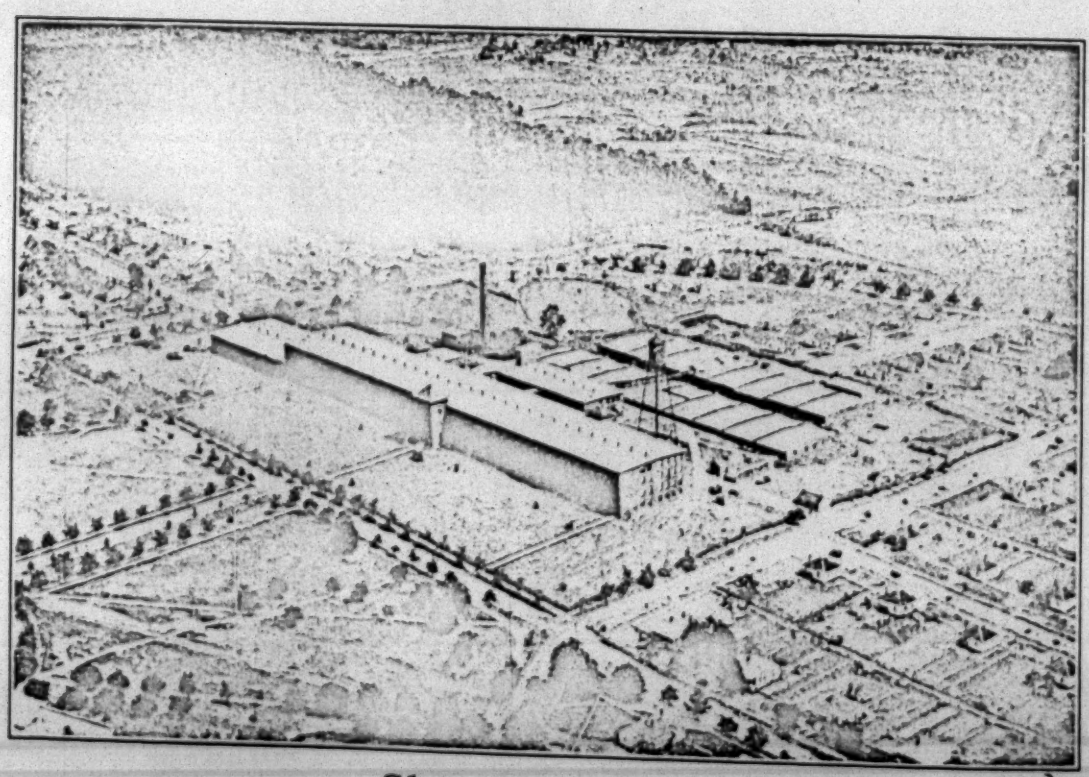
MILLS OF

West Point Manufacturing Company

WEST POINT, GEORGIA



Lanett Mill

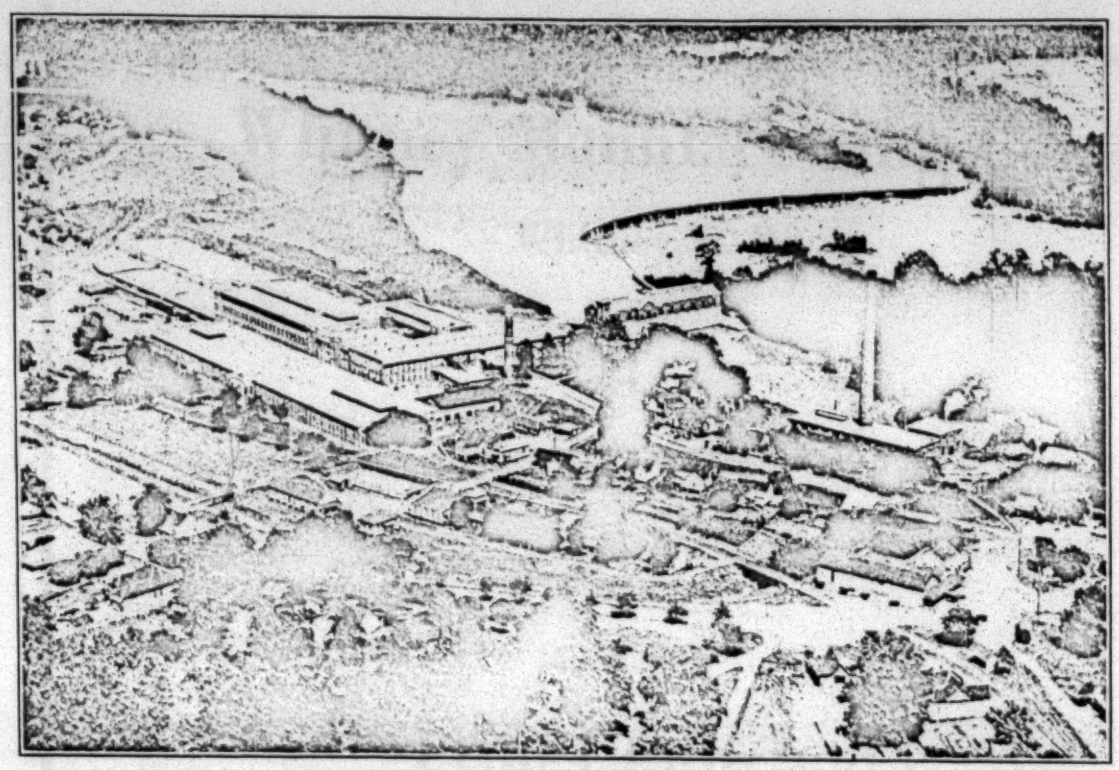


Shawmut Mill

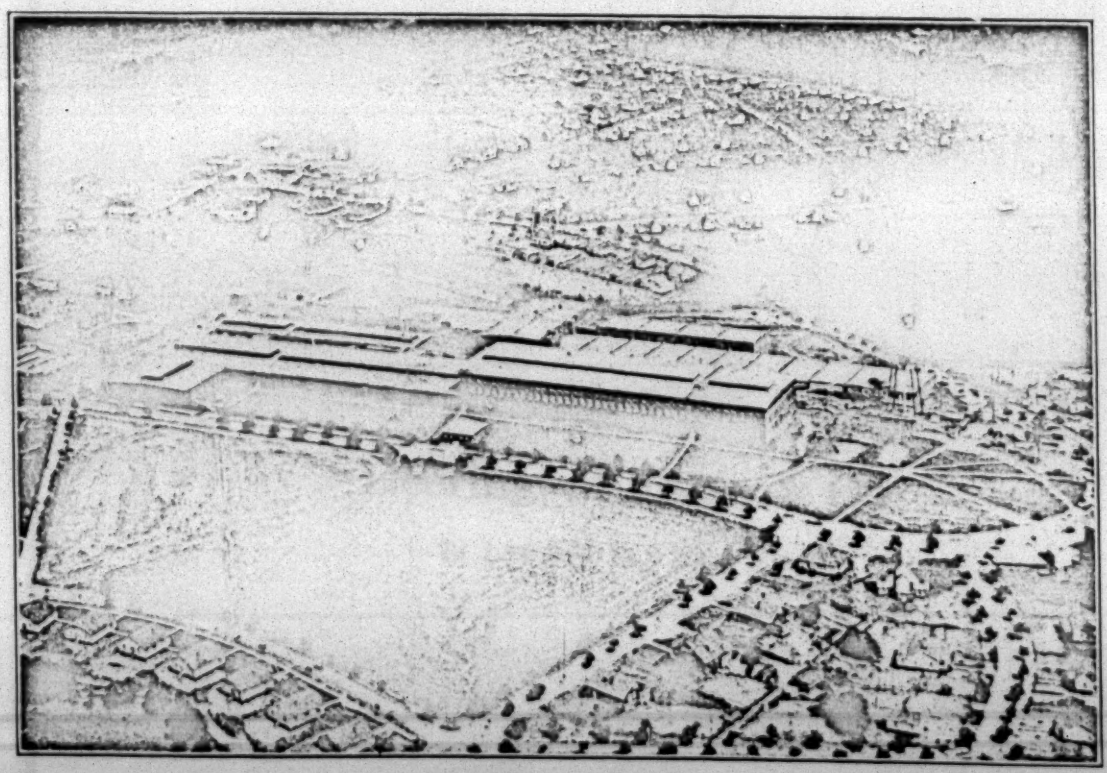
MILLS OF

West Point Manufacturing Company

WEST POINT, GEORGIA



Langdale Mill



Fairfax Mill

TEXTILE BULLETIN

VOL. 50—No. 1 MARCH 5, 1936

The Parade of Passing Years

THE parade of passing years marches on so swiftly that it is not easy to retain an accurate picture of each year after it has passed in review. Yet as each year slips by on hurrying feet, together they leave a record that is plain to see.

In the 25 years since the TEXTILE BULLETIN was first published, the Southern mills have written into the record a story of progress and achievement that fills the greatest single chapter in the history of industrial development in the South.

By 1911 the industry in the South had shed its swaddling clothes and settled down to a period of sustained growth that was to reach and pass, the development of its older and larger neighbor in New England. It was during this 25-year period that it experienced its greatest physical growth and accelerated its progress to an extent probably undreamed of by the pioneer mill builders.

In looking backward over this span of a quarter of a century, the many changes that have taken place in the Southern textile industry present a most interesting picture.

The changes in the machinery and equipment of the mills have alone been great enough to make an amazing story within themselves. Yet these changes came about so gradually that taken step by step, there was no year by year appreciation of their true significance. Were it possible now, however, to pass through the mill of 25 years ago into the modern plant of today, the comparison would be shockingly clear.

During these 25 years the old "factory hill" has given way to the modern mill village. The contrast between working and living conditions yesterday and today is notable evidence that textile progress was not limited to buildings and machinery.

The tangible changes that have taken place in this time, the outward and visible aspects of mechanical improvements are comparatively easy to appraise. They stand for themselves. The intangible changes, more difficult to measure, are equally as important, equally as valuable. They represent a change in thought, a happy row of milestones along the way. They brought about a greater appreciation of human values, and a fuller understanding of human relationships. They are distinguished credits written high upon the right side of the textile ledger.

In publishing its Twenty-fifth Anniversary Number, the TEXTILE BULLETIN is attempting to set forth in some measure the progress that the Southern mills have made in this time.

Manifestly it is impossible to give in detail a record of all of the developments in this period, but in this issue many of the highlights of this interesting picture are touched upon. They are worthy of study because of what they have meant in the past. They are even more worthwhile in that a backward glance is often very valuable in forming a picture of what may be expected in the future. All in all, they make up an exceedingly interesting chapter in textile history that is just behind us.

Twenty-five years is but a brief period in the history of one of the oldest industries in the world. Yet in the South, no other like time has witnessed so many significant textile changes. With this thought in mind, the articles in this issue are presented with the belief that they combine to form an interesting and worthwhile contribution to the record of the textile mills in the South.

A Quarter of a Century in Industrial Progress

By W. M. McLaurine

Secretary, American Cotton Manufacturers Association

ACCORDING to the Bureau of Labor statistics in 1910, the following average wages were paid in cotton textile mills: Men 15.6 cents, women 13 cents per hour.

Broken down into several departments, the following facts are recorded: In weaving, men received 15.1 cents per hour, women 14.7 cents per hour; in spinning, men received 12 cents per hour, women 10.8 cents per hour; speeder tenders, men 13.1 cents per hour, women 13.3 cents per hour; drawing frame hands, men 9.6 cents per hour, women 9 cents per hour.

In the South, the work week was 60 hours for single shift in most states. In many mills there were women and minors on both shifts. Putting these two factors together, we find a low wage scale and a long work week recorded in 1910.

This year is taken because the Southern Textile Bulletin is celebrating its twenty-fifth birthday as a constructive and contributory factor during this period.

In 1936, we find the industry rather consistently maintaining a minimum wage in the South of 30c per hour and a 40 hour work week on a single shift basis; two shifts of 40 hours each, or a maximum of 80 hours per week for productive machinery and the elimination of persons under 16 years of age from industrial work, an average weekly wage of approximately $15.00.

Improved Conditions

In 1910 too much child labor was involved to give to the industry a wholesome social standing, although the children were employed under the guidance and permission of state laws. As one looks back now and sees the social growth in industrial idealism he can repent his lack of wisdom then but can point with pride now at the conditions of minor workers today.

Again, the "graveyard" shift or the midnight to daybreak period of women and minors at work in the whirling wheels of an otherwise midnight silence has always been a sort spot in the heart of the employer.

For years, a struggle has been made to eliminate it. Legislation has been attempted, the 55-50 was another attempt until finally the recovery experiment proved, to the small minority that made it compulsory on the part of all, that this shift should be forever handed back to the discard as an indication of our progress and purposes in the march of civilization.

There have been many improvements in laws protecting women and minors during the quarter of a century and if the social mind of the laggards can not pace with the progress of the majority, other legislation will likely be sought.

In this one phase of social and industrial change both the employer and the employee have profited and in many cases they have co-operated in securing them. They have worked not in the glare of combat and compromise but in the realm of peaceful and painstaking patience, realizing that evolution in human welfare proceeds slowly.

Workmen's Compensation Laws

In these twenty-five years there have been enacted in the Southern states, Workmen's Compensation laws which have had several beneficial effects both to the employers and to the employees. Accidents, major and minor, have always been a source of social and economic disturbance, and even under the Liability Acts, compensations were nearly always an uncertainty with the injured person having to pay at times large legal expenses.

Under Workmen's Compensation, operating under a state commission, certain rules and regulations have been actually and scientifically worked out whereby each injured employee can tell with reasonable accuracy what his compensation is, or should be and his means of securing it is much simplified and he, the injured, gets his pay rather than the Court procedure employed otherwise.

Again, it has focalized the attention of the employer on the subject of safety and has been an indirect means of effectuating many standard safety devices, otherwise not discovered. The mills of the South have been made a much safer place in which to work. Employees have been indoctrinated also with the safety idea.

Again, safety and security in occupational work has caused employers in many instances to require medical examination for employment and this has helped the employee in the fact that he has been protected from occupying a job which his physical or mental examination indicated he could not or should not have.

Both employment and placement have had marvelous social and economic implications during these twenty-five years. Even as speed and more complex machinery has come into industry, the employee now finds his job a much safer place in which to work.

In the march of this quarter of a century three out-

standing social and economic tragedies have occurred and they have almost covered the entire period.

The War and its Aftermath

The World War which involved this nation naturally wrote its influence into the records of the cotton textile industry, and when the call came for men employers and employees alike answered the call. The Roll of Honor on tablets of many mills is mute testimony of the valor and patriotism of all alike.

Those who remained at home were just as loyal in the fact that they made it possible for those who went, to go. With energy and loyalty, they turned the wheels of the textile industry and valiantly did their part.

The aftermath of the war ushed in the tragedy of wild and uncontrolled speculation. As the late Will Rogers dubbed them, the A. F. N. (absolutely financially nutty) days. They were the tragic days of economic insanity,

W. M. McLAURINE
Secretary
American
Cotton
Manufacturers
Association

which proclaimed "a crisis of poverty and want could never come again. There would be two chickens in every pot and two cars in every garage." The wealth and wages of capital and labor were limitless. Employers and employees lived the same kind of life and believed the same things until one day in October 1929, a crash came. It was the fall of the house of financial insanity.

The third tragedy had arrived and had thrown the spotlight of sanity on the fury of the preceeding years. From that day now on to 1936, employers and employees have been grogily and staggeringly trying to clean up the debris and build again. Like most people, every one has tried to blame some one else for the tragedy and trying to legislate safety against such a mental escapade that brought so much social and economic unhappiness.

Law Offers No Cure

The cure is not in law, it is in people and all people, classes and creeds must stand by each other as in military preparation and say that such foolishness shall never happen again.

Employers and employees must work together; each one is impotent alone.

In the march "up the hill and back down," the same things happened to all, the difference was in degree only.

The employees shared in the social and economic progress of the rest of the world. They bought and sold; they owned and lost. In studying these conditions during this period it should be noted that 30 per cent of the wage earners either owned their homes or rented dwellings not owned by the mill. This proportion of Southern cotton mill workers not housed in company dwellings is probably higher than is generally assumed by those who have not made a detailed study of the situation. In fact, one of the criticisms most frequently leveled at the Southern textile industry is in connection with the housing policies of the companies. As long as 30 per cent of the workers live in dwellings not controlled by the industry in which they find employment, one may question the validity of the attacks made on the industry in this connection.

Employees Own Homes

It is also significant to note that 12.2 per cent of a representative group of North Carolina cotton mill families studied were owned by the people occupying them. The probabilities are that this is as high a percentage of home owners as would be ordinarily be found among workers in any well established industry, especially in view of the high rates of labor turnover in most industries.

Signs of Progress

Not only is this fact an evidence of economic progress but the cars around a mill, the radios and furniture in their homes, the dress and dignity and poise of the new generation indicate that culture and the luxuries of life are not denied these people any more than people who use other industrial means of economic security.

Another thing needs to be said with reference to the improved physical health that the textile employee has shared with other workers.

Perhaps during the past twenty-five years, engineering of all types—mechanical, sanitary and human—has made greater progress than in the preceding hundred years.

Scientific Developments

These scientific developments have been of equal benefit to both employer and employee. In every phase of working both task and danger, effort and fatigue, the new science has made its adaptations to the natural and specific requirements of the worker.

The worker has a more sanitary place to work, as well as in which to live. He has his physical capacities considered in laying out the task and those who are serious and dependable students of work and working conditions say that the new period has brought to the worker opportunity for more pay with less effort and under better conditions than the old period of hit and miss methods.

Looking Backward

A look back over the twenty-five years brings to those who are capable of understanding the turbulent period involved, a sense of satisfaction in the field of industrial relations. It is true there are no ideal situations and also that conditions are not now approaching the ideal but there has been marked progress in this field and progress has not stopped. When such conditions as these exist, there is an opportunity and occasion to congratulate the industry and to look forward with hope.

Era of Scientific Textile Research

Its Background and Future

By Charles H. Clark*

ANY accurate and impartial review of the outstanding economic factors responsible for the record-breaking development and expansion of the textile industry, and particularly of the cotton textile industry, during the last twenty-five years must credit as a major factor the direct and indirect results and benefits of scientific research. Not only did the latter factor exert an important influence in stimulating expansion of productive capacity, but it was a more important factor in taking up the slack between production and consuming capacity. It was not until the beginning of this period that the first important gifts of science to our industry commenced to be capitalized in a substantial manner. Today the industry could not prosper without them, and the numerous fruits of scientific research that have been made available to it in steadily increasing numbers and value.

We of the textile industry have been quick to take advantage of outside research, but have been very slow in adopting it as one of our routine tools. Our mills are numerous and relatively small. We have no corporations comparable in size to the General Electric Co., the American Telephone & Telegraph Co., E. I. du Pont de Nemours & Co., and other big industries which owe their birth and their prosperity to scientific research. Did we have such big units there would now be more mill research in progress, following the example of that branch of our industry which is the exception of the above statement, and whose remarkable growth is an inspiring part of the textile history of the last twenty-five years—the synthetic fibre industry. Born of scientific research it could not exist without it, nor without scientific control of its processes. Its example has been an important factor in stimulating more general interest of textile men in scientific research, and in causing them to seek methods by which they may engage in it. Several years of educational and promotional work by the American Association of Textile Chemists and Colorists and the old Textile Research Council, and the U. S. Institute for Textile Research, Inc., which they founded in 1930, helped to point the way. The Textile Foundation, organized in the same year by act of Congress, was another important factor, and, in its promotion and financing of basic research, to mention only one of its activities, the most important. These bodies made it possible for the smallest of textile mills actually to engage in scientific research on a co-operative basis. That this is the logical method of conducting an adequate program of research by and for the textile industry is now being given a practical demonstration. The organization and financing of the first project on this basis was started in 1934 by U. S. Institute for Textile Research, and their completion and the start of research last year constitute, I believe, one of the most important advances in textile research of the last quarter-century. Before describing it I wish to review briefly certain economic textile developments of the last twenty-five years. I have found some interesting and somewhat significant parallels in the same period of the 19th century. They may help to throw into higher relief those of the period that the *Textile Bulletin* is celebrating with this issue.

Two Industrial Revolutions In Textiles

During the years from 1911 to 1936 the cotton textile industry passed through a second industrial revolution which in its main aspects was closely similar to the first industrial revolution, and the latter for this country and for cotton textiles may logically be dated from 1811 to 1836. Both periods were marked by radical innovations in machinery and processes, particularly in labor-saving improvements and methods, but without radical change in basic machine principles. At the end of both periods the machinery of twenty-five years earlier was practically obsolete. Meanwhile, there had been marked advance in the chemical treatment of yarns and fabrics and in the processing machinery employed. In fabric design there was also notable progress. Lacking any outstanding improvement in merchandising methods there was, near the end of both periods, a productive capacity much in excess of what is commonly termed "normal consuming demand." This excess would have been much greater had it not been for the successful sales appeal of new finishes and products.

In 1836 there was no machine, process nor material used in the textile industry the invention, development, or application of which could be credited to scientific research. That the great inventors of those days were able by try-and-reject, or empirical, methods to raise the mechanical efficiency of the industry to such a high level is proof of their exceptional ability. They lacked the fundamental scientific knowledge upon which to base ex-

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panded, but still incomplete, stores of basic textile knowledge. Anyone who now relies solely upon empiricism and pure invention handicaps his efforts unnecessarily.

In the 1811-36 period there was no great chemical industry providing textile mills with coal-tar derivatives and synthetic dyestuffs, and a vast variety of processing materials; an industry which owes its existence and its present and future success to scientific research. There was no synthetic fibre industry, now the most active, progressive and most ably merchandised branch of the textile industry, whose products have been the breath of life, if not always of profit, for so large a proportion of the silk and cotton branches of the industry. Not only are synthetic fibres the direct fruit of scientific research, but their production necessitates continuous scientific control and research, and these are accepted as a normal tool of that industry. Mercerization was another important textile result of scientific research that was unknown in 1836. This process, and also the rayon and textile chemical industries were based upon research prior to 1911, but their greatest development was during the last quarter-century. It can be confidently predicted that the results of scientific research in the synthetic fibre and textile chemical fields during the next twenty-five years will be of far greater value to the textile industry than those of the last quarter century. Now basic knowledge of cotton fibre properties may also aid further progress in mercerization; for strength, if not for lustre.

From Empiricism to Science

Before referring to the many additional products of scientific research that have been made available to the textile industry, allow me to draw attention to the fact that until about ten years ago our textile executives and technicians, while acknowledging the value of scientific research to other industries and taking advantage of such results as had demonstrated textile value, were generally of the opinion that it was something in which their mills could not hope to engage profitably. There were a few exceptions to this rule then, and there are still many who adhere to it notwithstanding the large number who have become "sold" on the value to them of *organized* scientific research. Probably the majority of the latter operate mills which have chemical processing, or which process synthetic fibre yarns, or fabrics containing them; these in contradistinction to manufacturers of yarns or goods sold in the gray. The former, of course, have more mill problems that require research for their solution, many of which are outside of the service provided by manufacturers of chemicals, dyestuffs and other supplies. Saving intimate knowledge, however, of what research has done for the latter it is natural that it should have been utilized by this class of mills, and that many of them should have secured the services of men trained in research work. The spinners and gray goods manufacturers who had assumed that they "knew" cotton and needed no knowledge of its processing beyond the gray state, soon found when they ventured into the synthetic fibre field that they did not "know" rayon, and gradually became conscious of the possible value of research. The first step of many of them toward research, however, and with some of them the final step, was to exhaust the knowledge of the service departments of firms from whom they purchased supplies, or to engage a textile consultant's services. Either step, if continued, makes another convert to research.

The preceding paragraph explains but partially the attitude of the industry toward research in what may be rather vaguely termed the transition period just prior to the opening of what may be termed the era of organized scientific textile research. There were two other compelling factors: (1) The business depression, which in the cotton industry covered some ten years with only temporary alleviation, and which obliged every manufacturing and distributing factor to exert himself in efforts to make a market for a largely increased productive capacity; and (2) the marked expansion in the number of new products of research made available to the textile industry by chemical, dyestuff, rayon and other manufacturers, and their practical demonstration of the value of research. Never before in the history of the industry were so many new processes, finishes, colors, designs, fabrics and other products made available to stimulate consumer buying. Many old products have been displaced forever. Not all of these new things could be credited to scientific research, but the majority can be definitely.

Examples of Applied Research

The space available for this article is too limited to allow more than brief mention of a few of the many new products of scientific research that have helped to take up the slack of depressed business conditions, and that have also aroused the industry to a better realization of the possibilities of research as one of its routine tools. I must assume that it is unnecessary to list such new machines and machine improvements as the one-process picker, high-drafting systems, automatic spooler and warp-tying machine; new high-speed looms, slasher, etc. Some mill men may be less well informed regarding the large amount of new basic knowledge of cotton fibre structure and properties, and the new techniques and instruments developed for such research. Textile Foundation research was the chief source of the latter, and their reports are on record in the files of *Textile Research* and in reprint form. The polarizing microscope for determining cotton fibre maturity and immaturity is a practical application of this type of basic fibre research. We are very close to as intimate knowledge of the cellulose base of the cotton fibre as we already have of wool fibre structure, and when completed we shall have more scientific control of both its physical and chemical processing.

The new scientific knowledge developed by the rayon industry and by the dyestuff and chemical industries, during the last quarter-century, that has textile application would require several volumes for even brief review. Other than the new rayons, the best known textiles that have resulted therefrom are those pyroxylin coated; fused or bonded; latext impregnated; crease-resistant; laminated sheets and tubes that are acid-, alkali-and moisture-resistant. The synthetic resins used in the production of the latter fabrics, by the way, undoubtedly will find many new textile uses. Your chemists

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Textile Merchandizing Changes In The Last Twenty-Five Years

By Floyd W. Jefferson

Iselin-Jefferson Company

TWENTY-FIVE YEARS, two and one-half decades, a quarter of a century. It is a broad stretch and sufficiently long to mark many changes in cotton textile manufacturing and marketing.

In the old days, the weave shed of a cotton mill was a fairly populous place. Today the weave shed in a modern standard grey goods mill is a lonesome spot with each weaver separated from his neighbor by the margin of eighty to one hundred looms, the monotony of the day being broken by the frequent visits of the filling haulers.

The number of sides apportioned to the spinner has increased from three or four to ten or twelve.

Throughout the cotton mills of the country, labor-saving machinery has been introduced just as it has been in every progressive industry and as it must be if the wheels of progress are to be kept turning.

Radical changes have taken place in manufacturing and, by the same token, there have been changes in the methods of distributing mill products.

Earlier Selling Methods

Twenty-five years ago, there were more spindles and looms in the East than in the South, and during those days there was a decidedly different method of selling employed in the two sections.

The treasurer of the Eastern mill was usually also director of sales. It was the plan to make weekly trips from New England to New York. The Eastern mill treasurer made the rounds of the cotton cloth brokers and the brokers offered propositions from the converters for mill consideration.

While a great deal of business was usually consummated on market days, there was also close contact between the brokers and mills at all times, the brokers, in many instances, having direct wires to the mill centers.

There were also intermediary brokers in Fall River, New Bedford and Boston who represented the New York brokers and who made personal contact with mill treasurers.

The charge for brokerage was 1% and the mills assumed their own credit risks.

The method employed by Southern mills was quite different. While there were a few manufacturers that conducted their negotiations according to the Eastern plan, the great majority of Southern cotton mills entrusted their merchandising to New York selling agents, known as commission houses, all of them located in the Worth Street area.

Commissions were fairly well standardized at the following rates: colored goods, 5%; dobby and novelty and specialty grey goods, 5%; packaged goods, 5%; standard grey sheetings, drills, twills, 4%; standard print cloths, 3%.

During the last twenty-five years, there has been a tendency to trade down from these levels.

The commission covered selling service, cashing of sales, guaranteeing of credits, and payment by the commission house of any brokerage involved in the sales transaction.

The commission house acted as agent only and was not recognized as principal.

Eastern and Southern Selling Methods

There were several reasons for this difference between the Eastern and Southern methods of selling.

(1) Proximity to the market made Eastern access to the brokers easy.

(2) Eastern mills were, generally speaking, in better financial condition, and could carry the customer accounts.

(3) In many instances New York commission houses had advanced money for the purposes of mill construction under the condition that they were to have the selling agency.

(4) It was common practice for commission houses to make loans on merchandise.

(5) The lower cost of manufacturing in the South permitted these mills to spend more for selling and still have a lower total cost than their Eastern competitors.

(6) The theory was advanced that the executives in the commission houses were able to trade to better advantage with the brokers than the Eastern mill treasurers. This was always and still is a moot question.

The foregoing largely has reference to sales of loom state unfinished grey fabrics. When it came to the distribution of finished piece goods colored or bleached and packaged, there was little difference between Eastern and Southern methods of selling. There were few mills that could afford to maintain their own selling organization and out-of-town offices, and in the great majority of cases, the sales were entrusted to the commission houses.

Sheets and pillow-cases, towels, bedspreads, ginghams, coverts, cottonades, chambrays, denims, branded muslins and cambrics and longcloths were usually sold through Worth Street houses.

Selling Finished Goods

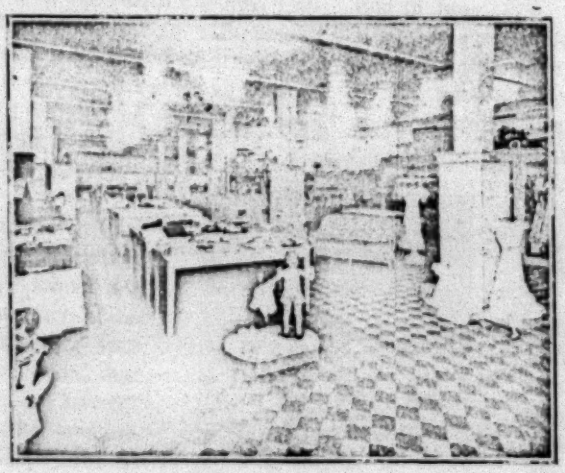
The procedure was simple and direct. The commission house sold to the jobbers and converters, and the jobbers and converters sold to the retailers and cutters. The commission rates were fixed on the basis of this comparatively simple service.

Within the last twenty-five years, however, vital changes have occurred. Catalogue houses and chain stores grew in importance. The jobber regarded them as his legitimate customers, but the buyers for chain and for catalogue houses insisted upon working closer to the fount of supply and began to go direct not only to the commission houses, but in many instances, to the mills themselves.

Another departure was the establishment of converting departments in large wholesale houses.

Expansion of Vertical Units

By far, the most important development, however, was the expansion of vertical units. These consisted of enormous enterprises with a single management and capital control, the organization comprising cotton mills, bleaching, dyeing and printing plants and a sales division to distribute the products.



It became increasingly difficult for the old-time converters to compete with the so-called corporation printers.

The competitive war went on apace, and the converters, using their wits, business acumen, styling ability and, in many instances, superior sales organizations, managed to hold their own. For self-protection, however, it was necessary for the converters to be on or below the market at all times in their purchases of grey cloth supplies, and as a result, it became increasingly difficult for the manufacturer of cloths for printing and bleaching and dyeing to get fair market value.

In the struggle for business, the corporation finisher and printer was frequently willing to operate for a single profit. In other words, they were willing to put grey goods into their plants at cost to insure the operation of their finishing equipment, and they were willing to maintain their selling organizations at cost to insure distribution. From cost to below cost was an easy step in the type of markets which have prevailed in recent years.

The converter, on the other hand, was compelled to pay a profit on the grey goods, a profit to the job finisher and printer, and commissions to his sales organization and factor.

In practice, the profits to the grey mill and to the finisher were theoretical rather than actual.

From the standpoint of practical economics, the vertical merger is sound but, in practice, it has not proven universally successful except in instances where the management has obtained something approximating control of certain types of merchandise or where advertised products have gained nation-wide distribution at maintained prices.

In strictly competitive fabrics, the converter has succeeded in owning merchandise as low as the larger units through purchases of grey goods below cost and the making of finishing contracts at prices even lower than those which the large corporations could meet.

Retail Selling Methods

In the meantime, retail sales of cotton domestics have undergone a vast change. "Gone are the home sewing days of years ago, where sheets and pillow-cases, cotton lingerie, infants' wear and many other articles for the house were home-made. The increase in the number of women employed in business and the growing vogue for relaxation and amusement during leisure hours, and the low price of ready-made articles have practically eliminated the importance of yard goods in the domestic departments."

During these twenty-five years, fewer and lighter garments have become the style in men's and women's clothing, low cut shoes have supplanted high footwear; silk, rayon and other synthetic fibres encroached heavily upon cotton in hosiery, underwear, draperies and other fields; paper products were substituted for cotton; jute and jute fabrics came into the country in increasing volume, changes in body and top construction in the automotive field deprived the industry of a great portion of one of its largest outlets; textile export markets were largely lost to countries operating on lower wage levels, and there has been heavy importation into the United States of cotton fabrics made abroad in low wage countries.

In spite of all this, the cotton textile industry has found new uses for its product and has been able to operate to a high percentage of its capacity, higher perhaps than any other basic industry, but its product has been sold at a percentage of profit entirely incommensurate with capital investment, and in many periods, at an actual loss which has eliminated millions of spindles.

Inability of the industry to adjust its production to demand, bringing in its wake all the evils of ruthless competition, has created chaotic conditions.

Recognizing the efficiency with which our better units are operated, the failure to make profits must be attrib-

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Education and Community Welfare

A Cornerstone of the Textile Industry in North Carolina

By Harvey W. Moore, President
North Carolina Cotton Manufacturers Association, Inc.

IN the early days of the textile industry in North Carolina the problem of illiteracy among employees was one which gave grave concern to the cotton manufacturers of this state. It automatically and naturally took its toll in the matter of personal effciency. It became a challenge to the leaders of an industry that was emerging from a small beginning to one of the leading industries of the state. The challenge was accepted and for more than a quarter of a century the textile industry of North Carolina has been building upon the theory that compulsory education and happy living conditions among the employees were vital to the progress of the industry. The records of the North Carolina Cotton Manufacturers Association are replete with resolutions, committee reports, and presidential addresses, all urging a strengthening of the compulsory school laws of North Carolina and a rigid compliance with these laws as they have existed from time to time.

Association Works for Better Conditions

Since its organization the North Carolina Cotton Manufacturers Association has sponsored a compulsory school law and Child Labor Law in this state. There has hardly been a meeting since 1906, the date of its organization, that the members of this association haven't eideavored to strengthen the compulsory education and child labor laws of this state.

Harvey W. Moore

On February 6, 1907, a commission composed of D. A. Tompkins, D. Y. Cooper, S. B. Tanner, W. C. Ruffin, Alf. A. Thompson, and R. M. Miller, Jr., was appointed for the purpose of drafting a child labor bill to be passed by the General Assembly of the State of North Carolina. In its report to the Executive Committee the chairman of this commission stated as follows:

"We are instructed to say to you that this proposed bill had in it a measure of compulsory education but this was stricken out in deference to a statement that the Superintendent of Public Instruction would propose a bill compelling education.

"The cotton manufacturers wish to be understood as favoring compulsory education for the children of this state under fourteen years of age and if it should transpire that no other proper bill is proposed that a clause for compulsory education shall be incorporated in this bill."

This constitutes the first formal statement of the attitude of this Association in the matter of compulsory education and child labor. From this time on the minutes of the Association are permeated with the efforts on the part of the textile manufacturers of this state to secure the passage of adequate child labor and compulsory education laws.

In January, 1908, the records show that the President of this Association addressed a letter to each mill in the state for the purpose of ascertaining whether or not the provisions of the child labor law were being effectively carried out. The president was requested to make a report of his findings at the next meeting of the Association in June.

In the President's report of June, 1909, we find the following paragraph:

"We have a fair and reasonable labor law now, and if we desire to keep it on the Statute Books of North Carolina, we must act and stand together in behalf of ourselves and our help—against the common enemy — or suffer the inevitable consequences of the lack of such organization. We should all abide by and enforce the law—it is unfair that one mill should live up to it and other violate it—and conduct of this kind has justly brought reproach upon some of us. Let us all agree to report to the proper authority any known violation of our labor law and have meted out to the violator the full measure of punishment as provided or let publication of his act shame him into obedience of compliance."

Not only has the textile industry in this state sponsored legislation from time to time for the purpose of increasing the standard for education but they have also at all times put forth effort to see that these laws, as enacted, were properly carried out.

Another cardinal principle which has been advocated by the textile industry has been the fact that child labor laws and compulsory school laws of the state should at all times be in perfect harmony. That is to say, where a law is enacted prohibiting a child from working between certain hours there should also be a law compelling that child to attend school. As stated by Governor Bickett at a meeting of the North Carolina Cotton Manufacturers Association in Asheville many years later —"let the hand that takes the child away from the shop and factory place him in the school."

In June 1915 we find the following resolution passed at the annual meeting of this Association:

"Resolved, First, That this Association pledge itself to encourage a faithful compliance with the Child Labor Laws of the state, and

Second, That we respectfully request every Superior Court Judge in this state to instruct the grand jury in each of his courts to investigate and return all violations of said laws coming within his knowledge.

Third, That we ask every County Superintendent of Education to report, and every Solicitor in this state to prosecute, all violations of said laws known or reported to him.

Fourth, That this Association continue to sincerely recommend both scholastic education and practical training, and condemns idleness as the greatest curse of civilization. It regards, with great pride, the compulsory school attendance law which this Association unanimously recommended and supported; and this Association again earnestly advises that the age limit of said school law be raised to thirteen years, and that it be rigidly enforced by the local authorities."

Again we find another resolution passed at the Winter meeting of this Association held in Raleigh on January 18, 1917, when, by resolution introduced by Colonel Alf A. Thompson and seconded by John L. Patterson, these principles were again endorsed. The resolution as passed was as follows:

"Resolved, That the Cotton Manufacturers Association of North Carolina wishes to go on record before the people of North Carolina as reaffirming our position in regard to compulsory school laws, and favor the age limit raised, as soon as possible, to fourteen (14) years of age."

Each meeting of the North Carolina Cotton Manufacturers Association brought forth a reaffirmation of the position maintained by the textile industry and an appeal to the General Assembly to enact laws carrying out these principles.

At the annual meeting of this Association held in Asheville in 1918 the following resolution was passed:

"Whereas, The North Carolina Cotton Manufacturers Association is on record as advocating the passage of a twelve (12) year compulsory school law, which is now in effect, and has previously recommended that the age limit for compulsory education should be raised to 14 years;

"Now, therefore, This Association respectfully urges the next General Assembly to enact a law in accordance with the subject matter of this resolution, and in this connection suggests the wisdom of manual training for boys and domestic science for girls, and that it is the sense of the Cotton Manufacturers Association that the school term be made six months instead of four.

"Resolved Further, That it is the sense of the Cotton Manufacturers Association now in session in the City of Asheville, that no boy or girl under fourteen years of age shall be employed on work in any factory or manufacturing establishment within this state.

"That no boy or girl under sixteen years of age shall be employed or work in any mill, factory or manufacturing establishment in this state between the hours of 9:30 P. M. and 6:00 A. M.

"That no boy or girl under the age of sixteen shall work or be employed in a mine or quarry or for more than six days in any week.

Pursuant to the foregoing resolution a committee, composed of Messrs. S. F. Patterson, Alf A. Thompson, J. O. White and Hunter Marshall, Jr., met in the office of Governor Bickett in Raleigh and asked for an expression of opinion as to the best possible child labor law and compulsory education law that could be passed. As a result of this conference a bill was drafted and introduced in the Senate and House and enacted into law by the General Assembly of 1919, and became effective as of July 1, 1919. The law provided that all children between the ages of eight and fourteen shall attend school continuously for a period equal to the time which the public schools in the district in which the child resides shall be in session and, further provided, for a fine or imprisonment for failure of the parent or guardian to carry out the provisions of this law. It is interesting to note that this law formed the basis for the Compulsory Attendance Law as it stands on the statute of this state today, as there have been practically no changes in the provisions.

On June 25, 1920, the following resolution was passed:

"This Association has noted with approval the good effect of the Compulsory Attendance Law and recommends a rigid enforcement thereof."

If further evidence were needed to substantiate the position of the textile industry we would find it forthcoming from that dean of the textile industry, who is familiar with the work of the North Carolina Cotton Manufacturers Association from its organization. On June 25, 1920, Mr. C. A. Hutchison, in an address before the Association in Asheville, made the following statement:

"First, the compulsory school law was the work of the Cotton Manufacturers Association. I remember that at a meeting in Charlotte one of the members from Gaston County offered a resolution that they have compulsory schooling up to the age of thirteen. Later, in Asheville it was raised to fourteen years, at the same time advocating a six months school throughout the state.

"Another matter that we are not aware of is that every law on the statute books in North Carolina relating to hours of labor and ages, at which minor should work, originated with the Cotton Manufacturers Association. You will recall that there was no labor law at all, everyone was a free lance and worked as long as he liked, but we were determined to pass some laws and this Association advocated 66 hours per week, and some years later decided on 60 hours. That was put into law. I think nearly all the mills now run 55 hours. They do in Gaston County, I know."

No man can estimate the value of this persistent effort on the part of the cotton manufacturers to the industry which they represented, and to the state as a whole. The industry has been benefitted because of greater efficiency on the part of employees, and the state at large has improved from 18.5% illiterates in 1910 to 10.0% in 1930. The movement for compulsory education was started by pioneers in the industry, many of whom have passed on, but they built an industry on a cornerstone, sound in principle, which will be handed down as a heritage to those who are holding the rudder today.

Superintendents and Overseers Deserve Credit for Textile Progress

By F. Gordon Cobb

YOU want me to tell you about the changes in manufacturing conditions for the past 25 years.

Gosh! boy, that's some order—in the first place, there are so many things that we (the overseers and superintendents) did in those days, that we are ashamed to tell the young fellows about today.

Many of our methods of management would look so absolutely foolish in comparison to today's methods, that the younger generation would not believe it possible for one of the old timers (a man who was an overseer or superintendent back in those days) to be able to adapt himself to modern methods.

But right there is the thought I wish to bring out—namely, those old timers are the very men who have brought about the majority of the changes in management for the past 25 years.

Wait a minute, now, before you challenge that statement, and suppose we reason a bit: if the men who are old timers today did not foster the new ideas as they came along from year to year—the new methods, the new systems, etc., that have been brought about in the last 24 years—who did?

The young fellows were not hanging around as cotton mill overseers and superintendents at that time.

Oh, yes, I'll admit the machinery builders have worked wonders in the improvement of machines, and the accessory manufacturers have had a big hand in improving machines, too. Don't misunderstand me as wishing to discredit the wonderful improvements which have been made in machines. However, if space would permit of a rather lengthy perusal of the details, I believe that I could prove that out of the sum total of all these wonderful improvements which the textile industry has benefited by, something over 50 per cent goes to the credit of the overseers and superintendents.

You know I have always claimed that the department heads (overseers and superintendents and, in many instances, managers, treasurers, and presidents) in textile mills are the most efficient—have more initiative, and are more progressive in their line of work as a whole, than department heads of any other industry in the world.

All right! All right, I'll stop preaching, but just answer me one or two questions:

How the Old Machines Have Changed

How much different is a picker machine today than it was 25 years ago?

Does a card, today, look anything like it did 25 years ago?

Hold on, now, I know just exactly what you are going to say, but I have the floor, and wish to assure you there is no likelihood of my stepping on the toes of any machine builders, because the machinery men know that I am with them 100 per cent in all the improvements that they have made, and besides, some of my best personal friends are machinery builders.

But just a minute, and look at this picture of a spinning frame. Also, that "E" model Draper loom that came out in 1910. We all know that the "X" model loom is so far ahead of that loom that there is no comparison. But I claim that the fundamental principle of carding, spinning, and weaving is the same today as it was 25 years ago.

Don't you worry; those machinery builders will take care of themselves all right. They will tell the world all about their new inventions, their new machines, and they will also make themselves so convincing that any mill president who has any money or even can borrow or steal any money, will surely start replacing his old machines or he will soon probably have to steal sure enough.

Progress of Superintendents and Overseers

But I am not a machinery builder—every fellow to his own knitting—so, what I want to tell you about is the progress which overseers and superintendents have made.

I have come in contact with these men all through these years, and can vouch for the work they have done—how they have unselfishly pooled their ideas, through the Southern Textile Association, the textile magazines, etc., many of them paying their own expenses to textile meetings—how they have given of their time and patience in making thousands and thousands of tests—then putting the results of all their tests together and giving the compiled information to the public for the good of the textile industry as a whole.

Twenty-five years is almost too long for us to go back to relate some things that we were doing which would make the average up-to-date textile man laugh today.

For example, it has not been so long since there were numerous mills with three process pickers with great long cleaning trunks, not only in mills making print cloth numbers, but medium numbers.

How Many Processes of Drawing?

Three processes of drawing was prevalent in such mills, and I remember distinctly one of the demonstrations that we used to show a man that he did not really

need three processes of drawing, was to take six cans of sliver and run it around and around through the same drawing frame until it would get so slick from the drawing process, that the sliver would fall apart when you would pick it up.

And if anyone had mentioned the possibility of making print cloth numbers out of intermediate roving, well, all the best men at that time would have ridiculed him, claiming that he could not get even yarn with intermediate roving on a spinning frame. And now look what many mills are doing—not only taking slubber roving to the spinning frame, but running it single.

How Light Carding Started

Well do I remember the first information we began to compile for the Southern Textile Association, in regard to light, quick carding. The late Mr. Mills, who was with the Saco-Pettee Shops, related to me an experience he had while erecting a cotton mill in India.

The machinery was laid out to make certain numbers that the Indian Prince (who was the head of the firm) wanted the mill to produce. All this machinery was shipped, and Mr. Mills went to erect same. The Indian Prince then informed Mr. Mills that he wanted to make a different product. Mr. Mills realized that it would not take all the cards that he had laid out to make this new product. However, he reasoned that if he started up the mill with part of the cards standing, the authorities would criticise him and his firm for not laying out the correct number of cards. Therefore, he started up all the cards, but at a greatly reduced production per card.

Mr. Mills related to me how well the spinning started off, and how much better breaking strength the yarn showed than he was expecting or had ever seen before.

As well as I remember, Mr. Mills told me of this experience the year that we had the first Textile Exposition in the South, which you will remember, was held in the buildings of the Piedmont & Northern Railway. That was, of course, before the Exposition Building was erected.

Early Technical Meeting

We got several boss carders and superintendents interested in making some tests based on this information.

Here are some of the questions we asked carders and superintendents: How many pounds per day of 10 hours does your finisher produce and will two or three-process pickers produce the strongest yarns? What is the weight per yard of your lap? How many pounds do you card per day of 10 hours on each card? Do you believe you could get stronger or more even yarn by carding less? Do you prefer a heavy lap with a slow feed or a light lap with a faster feed? Give your reasons. If you were going to reduce your carding, would you do it by reducing the speed of the doffer, weight of sliver or weight of lap? Why? What is your experience with different card settings, especially with reference to the breaking strength of yarn? Will licker-in set to 12-gauge make a stronger yarn than when set to 7-gauge?

When the information was compiled, we all learned something, namely, that we had been putting too many pounds of cotton per hour through our cards. The results were that J. E. Sirrine Co., Lockwood-Greene Co., and other engineering firms arranged for mills to put in more cards. One of the arrangements was to put steel beams in the card room, in order to eliminate columns. This gave room for more cards in the same building.

Now, to give you a little history which occurred before we began to learn something about carding.

To the best of my knowledge, the first dobby heads were put on automatic looms in a mill in South Carolina, between 1900 and 1903. I remember distinctly that Prof. J. H. M. Beaty, who was the director at Clemson College, had a big laugh over the fact that we were attempting to put a dobby head on a loom that changed filling from a hopper. He said that all the cloth would be seconds. Of course, no one at that time had thought of a feeler, and we started up the first warps without a stop-motion. In other words, we disconnected the warp stop motion and operated the loom like a plain loom so far as warp stop motion was concerned. Professor Beaty, several years later, was employed by Mr. Parker to look after all of his fancy work in the different mills which Mr. Parker controlled.

Twenty-four Looms Per Weaver

And to the best of my knowledge, the first mill to operate 24 looms per weaver was in Alabama. These looms were on 27" print cloths, and when the news got out over the country, the English papers commented on the fact that it was impossible for a human being to cover that much floor space, and that the mills in the States had gone wild in their efforts to operate automatic looms.

Mr. George Otis Draper sent me newspaper clippings from these English papers, and to combat such statements as these, we conceived what we thought, at that time, was a "bright idea."

We put a track, made of half round iron, in the weaver's alley. On this track we mounted a truck, in the center of which was a revolving stool. On one end of the truck was a filling box. The weaver sat on the stool and filled his batteries from the box on the truck. If a loom stopped down the alley, the weaver merely took hold of the loom and gave himself a shove. Down the alley he went to the stopped loom.

Draper Corporation had this weaver's truck patented, and it is now shown in the I. C. S. text-book on weaving.

Twenty-five years ago, plain hand threading or suck shuttle looms could compete with automatic looms, because the margin of profit was, of course, greater than it is now.

I also remember a mill, and it was one of the good mills, not over a hundred miles from where you are publishing the Textile Bulletin now, that gave each weaver a broom on Saturday, and each weaver was required to sweep around his looms and his part of the alley while, you can of course realize, most of his looms were standing.

First Electrically Driven Mills

To the best of my knowledge, the first fully electrically equipped mill was in South Carolina, and at that mill was installed the second order of Draper (Northrop) looms which came South. To relate some of the methods used in operating these first automatic looms would

(*Continued on Page 136*)

Development of Textile Education

By Thomas Nelson

Dean of Textile School, North Carolina State College

At the present time there are eleven textile schools in the United States which offer three or four year curricula for day students. These schools are located as follows: Philadelphia, Pa.; Lowell, Mass.; New Bedford, Mass.; Fall Fiver, Mass.; Providence, R. I.; College Station, Texas; Lubbock, Texas; Auburn, Ala.; Atlanta, Ga.; Clemson, S. C.; and Raleigh, N. C. The schools at Philadelphia, Lowell, New Bedford, Fall River, and Providence also offer evening courses.

The causes leading up to the establishment of the first textile school in the United States is worthy of consideration. Behind this development of textile education in the United States was the indirect result, and later the direct result of the Centennial of 1876. For the first time, in the German section of the Exhibition, was shown "French spun yarn products," which immediately attracted the attention of the American purchasing public and increased the volume of sales. In 1879, three years later, material from those yarns were coming into this country by ship loads.

As a large portion of the products around Philadelphia were made on "Bridesburg Roller Looms," which were limited in capacity, and also having few broad looms in their factories, the dress goods materials were made on those looms. These materials were coarse and common in texture and were gradually piling up on account of no sales, the foreign fabrics taking their place, which precipitated one of the worst strikes Philadelphia ever knew.

Textile manufacturers of that vicinity decided to investigate and Mr. Theodore C. Search, the founder of Philadelphia Textile School, was chosen to go abroad to Alsace and if in his judgment it was advisable to order machinery for making fabrics similar to the imported, he should do so. This was done and machinery came to this country along with French erectors to put it up. When this was done it was found that there were few designers of textiles, and these were either Scotch, English, or Irish—very few Americans.

About this same time, England was very much exorcised over the question of technical education and what Germany was doing along these lines. England was selling to Germany large quantities of yarns from the Braceford, Leeds and Manchester districts, which were later returned to England in the way of beautiful fabrics. The result of this was the establishment of various textile schools in England.

The question of technical education, and particularly textile education, therefore emanated from Germany's apparent success in establishing trade schools for all kinds of crafts.

This competition and importation was having its desired effect in regard to textile education, both in England and America. The Manufacturers Association of Philadelphia at this time, decided that inasmuch as they did not seem to have "designers" and "manufacturers" sufficiently skilled to handle the kind of products the people desired, they would endeavor to collect sufficient monies to start a school and make every effort to be able to hold their own in competition with the imported fabrics.

The prime mover in this enterprise was Mr. Theodore C. Search, an outstanding man in his day, and thirty thousand dollars was pledged which was a large amount in those days.

Difficulties were encountered as is the case in practically all new enterprises, but finally by an agreement with the Pennsylvania Museum of Art, the Manufacturers Association was enabled to organize and start their school. Thus was the Philadelphia Textile School organized as the first textile school in America, and in 1863 they were in the business to teach textile designing. The first teacher was a Mr. Holgate, a local designer of English descent. He was succeeded by Mr. A. E. Posselt, who had received his training in Austria, but was then connected with a wool manufacturing company of Philadelphia. The first year they had no machinery of any kind. In 1883, the present Director, Dr. E. W. France, because of his broad experience, was selected to direct the school, and the success of the graduates of the school is an admirable tribute to him both as a teacher and a man.

The establishment of the second school in America was the corporation of the Lowell Textile School in 1895, but classes were not opened until the beginning of the calendar year 1897. There were 33 students and 7 graduated in 1899. The original act of incorporation as given in the first catalogue, is as follows: The "Trustees of the Lowell Textile School" are incorporated under a special act of the Massachusetts Legislature for the purpose of establishing and maintaining a Textile School for instruction in the theory and practical Art of Textile and Kindred Branches of Industry.

The school was first located on Middle Street, Lowell, in rented quarters, occupying two and one-half floors of a large brick block, (incidentally, the writer had his first American Textile School connection in this building, in a minor capacity, also as student and instructor). There were 33 students in the first class and 7 graduated in 1899.

Other textile schools organized in the Northern States are as follows: New Bedford Textile School, New Bedford, Mass., which was incorporated in 1895. A site for the school was bought in 1898 and the building erected then dedicated on October 14, 1899. In the first class there were 11 day students and 183 evening students.

The Bradford Durfee Textile School, Fall River, Mass., was opened for students in the Spring of 1904, with 5 day students and 163 evening students. The first full school year was that of 1904-5, with 8 day students and 134 evening students.

The Rhode Island School of Deisgn, Providence, R. I., was incorporated April 5, 1877. The Textile Department, however, was not established as a part of the school until 1903 when a three year day course in the designing and manufacture of fabrics was started, with an entering class of 30 students. Three years later, in May, 1906, 8 students received the honors of the school.

In all the above schools, developments in curricula, increase in number and size of buildings have taken place since their organization.

Two schools are located in Texas, one at College Station, and the other at Lubbock. The first of these is a part of the Agricultural and Mechanical College and was started in 1904-1905. The class consisted of 4 students, all graduating in 1906.

The second school is in connection with the Texas Technological College and began work in September, 1925. In 1929 six young men graduated in Textile Engineering. A four year curriculum is offered by each of the above schools.

Each of the Southern States of Alabama, Georgia, South Carolina, and North Carolina, have a textile school. All these schools are a part of a regular established college. Each school offers four year curricula for students which includes, in addition to the regular textile courses, such subjects as mathematics, chemistry, English, Physics, Personnel and Industrial Management, and other cultural courses.

As stated in the catalogue of the North Carolina State College, "The purpose of the Textile School is to promote the textile interests of the State by giving instruction in the theory and practice of all branches of the textile industry," and which is the purpose of all the Southern schools, in fact, of all the textile schools. The textile schools of the South have had a development comparable with the development of the textile industry. This development of the textile industry has been somewhat phenomenal, yet at the same time it has not been a mushroom growth, but a natural development because of the character of her people and the advantages peculiar to the South. Along with this development has come a great advance in the moral and educational uplift of those engaged in this industry.

Within a period of two years, 1898 and 1900, the textile schools of Georgia School of Technology, Clemson College, and North Carolina State College were organized. Georgia School had five students graduated in the first class; Clemson College, four; North Carolina State, one.

The latest school to be organized was at the Alabama Polytechnic Institute, Auburn, Ala. This school was organized in 1929, with an enrollment of 44. In 1932, four men completed the requirements and graduated.

Textile schools have passed through strenuous times, the same as industry. Student registration has varied with conditions. Additions to equipment and buildings have been made when necessary and possible. Curricula have been rearranged and adjusted from time to time to keep pace with changing conditions. On the whole, there has been a general advance in the calibre of faculty, students and registration.

The following report of the various Deans of textile schools at their semi-annual meeting, will show at a glance the advance made in student registration and the number of graduates as compared with the number of graduates at the beginning.

Name of Institution	Enrollment 1935-36		Graduates in Day Course 1935
	Day	Night	
Rhode Island	76	285	12
North Carolina	322	——	37
Lowell	185	1414	27
Texas A. & M.	40	——	4
Georgia Tech	140	20	12
Fall River	100	1400	35
Texas Tech.	51	——	5
Clemson, S. C.	275	——	33
Alabama A. & M.	75	——	8
Philadelphia	145	350	36
New Bedford	138	1267	30
11	1547	4736	239

New demands are continually being made upon the skill and creative ability of the textile manufacturer, as mills are called upon to make finer and more diversified products. Competition in this new form of manufacturing makes it imperative that the leaders of the future be better trained. With each new step in advance, now and better opportunities are afforded technically trained men whose education has been properly adapted to modern methods of manufacturing.

The standards of living are gradually being raised, giving rise to more discriminating tastes in the choice of fabrics and garments among members of all classes. This is making it necessary that textile manufacturers study the social forces which control the whims and fancies in fashion, and thereby be able to foresee what the demands of the future will be.

Textile schools are playing an important part in this industrial progress. Their object is to promote further progress in the textile industry, first, by training leaders for the future expansion of the industry, and second, by research and investigation to discover new and better processes of manufacture, and thus contribute to the present day knowledge of producing and finishing textiles.

With these aims in view, textile schools are equipped to give thorough instruction in the principles underlying the manufacture of cotton, wool, silk and rayon into yarns and fabrics of utility and beauty.

In writing this short history of Textile Education I am indebted to Dr. E. W. France for much of the early history herein contained.

Textile Mill Lighting

Past and Present

By Dean M. Warren

General Electric Company, Nela Park Engineering Department

THE practice in textile mill illumination during the past quarter of a century offers a really comprehensive record of the development of modern lighting. In the early days of electric lighting such incandescent lamps as were available were relatively inefficient and it was, therefore, economically impractical to light the entire working area of the mill to a level which was recognized as desirable. As a result so-called "local" or "drop" lighting (Fig. 1) was installed.

Such lighting appeared to be ideal when appraised on the basis of accomplishment. For not only was it easily controlled, being directly at the work operation and therefore accessible to the workman, but it also provided the worker with an apparent abundance of light when and where needed.

However, there were dark areas between machines due to the character of the lighting—areas where danger lurked in the form of unseen objects over which to be tripped, but little thought was given to the problem. Nor was good plant housekeeping considered. Then came the War, and with it orders for more and more goods, with the result that the production manager became the most important man in every manufacturing plant. Every aid to production was tried; machines were speeded up; more machines were installed, and then someone thought of better lighting. Illuminating engineers came into the picture and on their recommendation the general lighting system (Fig. 2) supplanted the hit-or-miss type of lighting that had existed previous to that time. No longer was the plant interior a wilderness of hanging cords and drop lights. Instead it presented a neat and efficient appearance, with lighting units up and out of the way, mounted close to the ceiling and spaced at regular intervals to light the entire working area uniformly.

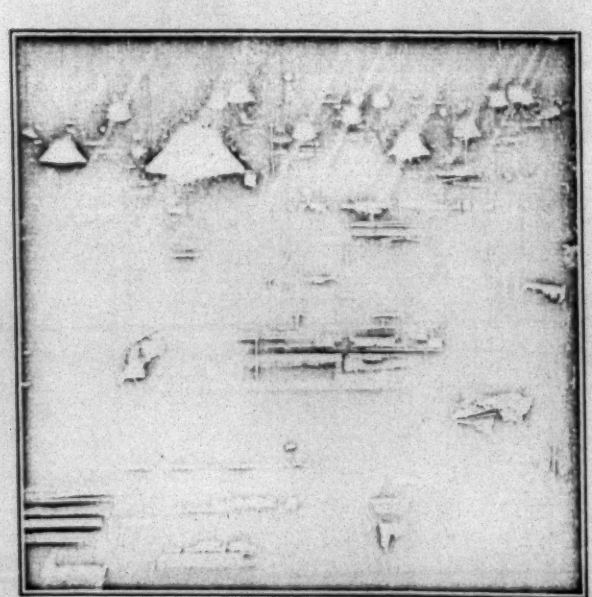

FIG. 1—*Local lighting, reminiscent of the era when men worked 12 hours a day, was the first step in the evolution of modern lighting by means of electric lamps. This type of lighting was glaring, shadows were bad and contrasts were harsh. Measured by today's standards it was a handicap to the worker instead of an aid.*

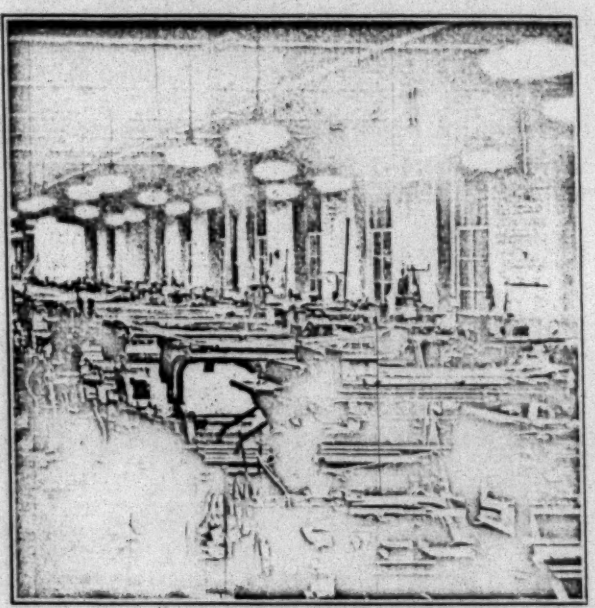

FIG. 2—*A system of general overhead lighting. The units were up out of the way of the operators, the lighting was uniform throughout the room, and shadows and glares were reduced to a minimum.*

Raising the light source to the ceiling naturally brought a need for well-designed, glare-eliminating reflectors to direct and properly diffuse the light from the higher-wattage higher-efficiency gas-filled lamps, which were available at that time. By 1920 there had been developed 200-, 300-, and 500-watt equipments which could be used safely at heights of 10 to 15 feet above the floor and which fulfilled these needs.

Indeed they fulfilled them so well that General Lighting of a high level was hailed as the cure-all for any and all lighting ills. But five years after any war ways of thinking change. So it is not strange that by 1923, when industry found red ink on her books, industrialists and illuminating engineers began to question the merit

of placing the lighting units with respect to the building bays only. And because there seemed no mandatory reason for such arrangements, lighting systems began to be designed with a view to lighting individual

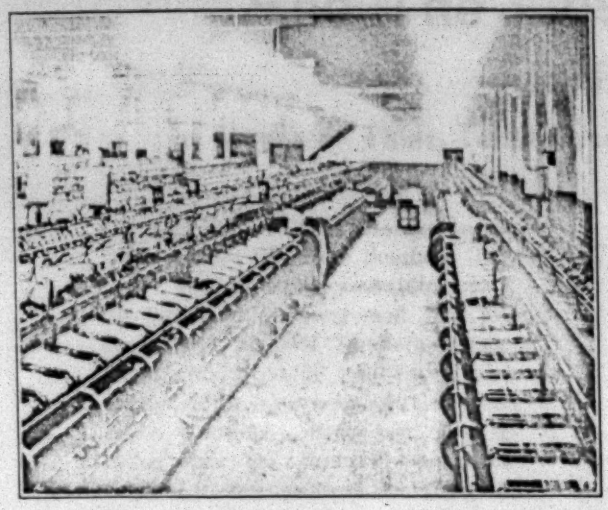

FIG. 3—*Group Lighting, designed with a view to lighting individual groupings of machinery rather than the entire working area, provided high levels of illumination where needed.*

groupings of machinery rather than the entire working area.

This type of system, (Fig. 3) termed Group Lighting has countless advantages. It makes high levels of illumination available where needed; it had the up-and-out-of-the-way advantages of the General Lighting system, but it also has one of the disadvantages of the old Local Lighting system. Carried to extreme, it will call for lighting units to be spotted over this machine and that, until the whole system appears disorganized and untidy, lacking in the very efficiency it is designed to promote.

Because machine groupings have to be changed occasionally a special "loop, hickey, and hook" method of suspension was developed. By tapping an extension cord into the old ceiling outlet and draping it over the new machine location, (Fig. 4) light could be obtained where needed. If this were done in a single instance, the evil would not be worth mentioning, but sooner or later the practice increases until the appearance of the room is unslightly and even dangerous, and the lighting system is an inefficient arrangement of miscellaneous units placed to suit the whims of this workman or that one.

Undoubtedly Group Lighting is a flexible system but it must be used with some restraint in order to keep it a "lighting system" and not just a hodge podge of lighting fixtures. With all its flexibility it is often unable to supply at the individual work places the amount of light necessary for most efficient seeing.

How Much Light Is Enough?

During the past few years a new concept of artificial lighting has come into widening appreciation. This concept, born from researches in seeing, proposes the use of lighting in scientifically prescribed amounts for every seeing task in order that human energy and human eyesight may be conserved.

The necessity for aiding the eyes in every possible way is greater today that ever before, because present-day working standards impose a heavy tax upon our powers of vision. We think of these modern times as an age of labor-saving devices, in which machines and efficient production methods have largely relieved men of the strain of physical labor. However, these very products of civilization while lifting burdens from the backs of human beings, have imposed greater strain on their eyes, minds and nerves.

Prior to 1910 a general degree of illumination measuring from one to three footcandles was considered average. Today the average for most operations to be found in the textile mill is from 15 to 30 footcandles. Some areas, where close visual work is being done need 50, 75 and 100 footcandles.

Why this increase and to what lighting levels will industry ultimately rise?

The Science of Seeing has the answer. It says that the increase in lighting has come because industry has had proved to it the value of light in decreasing accidents, reducing spoilage, and in decreasing the cost of production. And by way of answering the second part of the question, it mentions that out-of-doors on a bright sunny day, there may be as much as 10,000 footcandles of illumination and that the human eye evolved, not under hundreds, but under thousands of footcandles of light.

It isn't necessary to provide the quantity of footcandles indoors that nature provides outside. To do so we would tax the ingenuity of the engineer and probably couldn't be justified from an economic viewpoint. What is desirable, however, is to provide high levels of illumination for those operations requiring close visual application and this is most economically done by using supplementary lighting—the system used back in the days when three footcandles of illumination was better than average. But local lighting, supplying 100 or more footcandles is not enough today. It is being used in conjunction with one or both of the other systems from which it has come to be called "General Lighting Plus."

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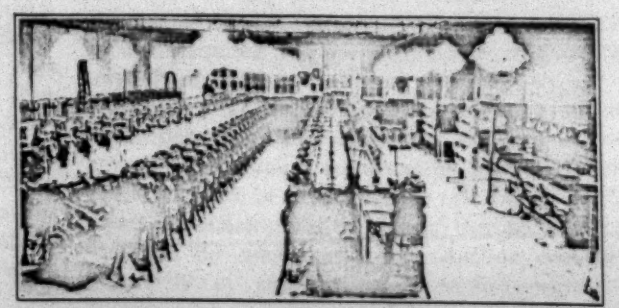


FIG. 4—*By the use of the "loop, hickey and hook" method of suspension, the lighting units could be shifted at will. Used to extreme, however, this scheme of lighting resulted in an inefficient arrangement of miscellaneous units placed to suit the whim of the workmen.*

The Cost Accountant Twenty-Five Years Ago And The Cost Engineer of Today

By Frederick Moore

of Moore & Thies, Textile Engineers and Cost Specialists, Charlotte, N. C.

TWENTY-FIVE years ago to the month when the Southern Textile Bulletin came into being, the writer as a young man, had just commenced his first Southern engagement with a textile mill—the Norris Cotton Mills Company of Cateechee, South Carolina. This fact was recalled upon the Bulletin's announcement of its intention to celebrate its 25 years of service by this special issue.

An uninterrupted service of 25 years in the publishing of textile news and factual information, to the young at least, seems a long time—to those older in experience, it stands forth as evidence that a foundation of permanence has been established, which only time and continuous effort in one direction can assure.

Every organization must keep its thoughts and purposes fresh and growing, if it would remain upon a competitive basis and avoid falling into a rut. This, the Bulletin has done and now, after these years, it seems better prepared than ever to kick up the dust before each passing generation and to lead the way into the next with ever improved methods for gathering and presenting news and facts of real interest and value to the textile industry.

Moving to the subject assigned to the writer, he wishes to mention briefly and in a very general way the different stages of development of textile cost accounting during those years since the Bulletin was first organized. Twenty-five years ago textile cost accounting stood for a simple division—pounds produced into dollars expended completed the equation. Later, he who had the knack for gathering statistical information regarding the actual production and expenditures of a mill and the patience to arrange this information systematically for the purpose of obtaining the unit cost of a textile product, after it had been manufactured—often after it had been sold—could hold himself forth as a textile cost accountant. Naturally, the information thus obtained had little or no value in forecasting profit advantages, either from the standpoint of current operations or machinery possibilities. As a plan of accounting it soon fell into disrepute and became known as "Post mortem accounting."

The prime purpose of textile manufacturing is, of course, to find ways and means to operate at a profit, and that of cost accounting to lend what assistance it can in accomplishing that purpose. To this end the science of mechanics and that of cost accounting had to be consolidated. Machinery productive possibilities—not actual accomplishments—had to be made the basis for computing costs, if cost accounting was to be of any vital assistance to the manufacturer in planning his operations to the best profit advantage.

Accountant Becomes Cost Engineer

Familiarizing himself with the mechanical operations and specifications of all textile machinery, the textile accountant of yesterday become the textile cost engineer of today—one thoroughly acquainted with all combinations of textile calculations, especially those that are used to determine the productive possibilities of machinery in fixed hours, and the amount of labor and expense required for its operation. He uses this information not only to determine the minimum cost for which different yarns and constructions of fabric can be made, but to disclose the amount and cause of all excessive costs which heretofore had been hidden in such costs as were based upon actual production and expenditures.

Duties of Cost Engineer

During the past few years the bond of mutual co-operation has been materially strengthened between the trained textile cost engineer and the superintendents of mills and their overseers to the advantage of better manufacturing and a better product to the consumer. Working with them and the management the cost engineer of today has well defined duties to perform. They may be summarized as follows:

First: To determine, by a thorough survey of the plant layout, the productive possibilities of each machinery unit in fixed hours and the amount of labor and expense required for operating these separate units in these fixed hours.

Second: To organize an arrangement of machine production and cost calculations by separate units or operations, in logical sequence, on loose leaf sheets for quick reference in computing the cost for which any yarn count or construction of fabric can be made and to facilitate the amendment of production and cost data separately in any distinct operation—when machine speeds, work assignments, labor complements, labor rates and expense budgets in that particular operation or department has been improved to the extent of lowering the original standard calculations.

Third: To compute by this arrangement of textile

(*Continued on Page 132*)

"Times Do Change"

By D. H. Hill, Jr.

Associate Editor

TWENTY-FIVE YEARS may be a long time to live through, but it is a short time to look back upon. A great deal of cotton has gone through the mills since 1911 and with it has gone many of the old ideas, methods and viewpoints.

In this period the mills have known both good times and bad and a little of everything in between. They have seen the demand for their products range from the peak of the warm boom days down to the virtual vanishing point during depression. And through various and fluctuating conditions they have had to step along briskly to keep pace with the constant changes that have taken place in all of the factors that affect mill operations.

It is indeed a long jump from the time when a man with a mill on his hands just tried to run it the best he could down to the day when it was almost necessary to call up Washington every morning before the starting whistle could be blown.

The expansion of the textile industry in the South in the past 25 years has been really remarkable. Measured in terms of spindles, the figures show a growth of almost one hundred per cent. In 1911 the mills operated slightly more than eleven million spindles. Today they have approximately twenty million spindles. These figures, however, tell only a part of the story. The old practice of measuring the industry in terms of spindles has lost much of its value and the spindle is no longer the yardstick it was formerly considered. It does not take into account the vastly larger number of looms that have been installed, the tremendous increase in knitting equipment nor the great amount of finishing equipment now operated in the South. The industry has not only grown in size. It is more well rounded and more self-contained than it was in its earlier days.

Diversity of Output

The gradual diversification of output has been one of the most interesting developments in the Southern mill field in the past 25 years. Looking backward to 1911 again, it is found that comparatively few cotton manufacturers were willing to dispute the old theory that the South must confine its production to coarse yarns and fabrics. It had been contended for years that the mills in this section lacked the experience, the equipment and the skilled employees necessary to venture into the manufacture of fine yarns and goods. Only a few mill men had been willing to break away from that contention.

In 1911 a start toward fine yarn spinning had been made in Gaston County and in a few mills elsewhere. In Gaston, there were then about a dozen mills on fine combed yarns. Today, the majority of 100 plants there spin fine numbers and the county has become the combed yarn center of the country. A few mills weaving fine goods were scattered through the South 25 years ago, marking the beginning of what has grown into a very important section of the industry today.

The same trend has been noted in the manufacture of hosiery. The mills of 25 years ago, and there were not a great many of them, were mainly devoted to the manufacture of cotton stockings. They made little effort toward fine numbers until the style-makers put the girls in short skirts and the nation became leg-conscious. The entire feminine population began to demand a greater adornment for what were blushingly referred to as "limbs." Cotton hose got the gong, as silk and rayon began to dominate the style picture. The Southern hosiery knitters then found that they could manufacture high-style merchandise as well as could the mills in other sections of the country, and now contribute a large share of better grade goods.

Rayon Makes Its Bow

When the *Textile Bulletin* entered the field in 1911, rayon, as far as commercial production was concerned, was just making its bow. The growth in the production of this fibre and the tremendous influence it has exerted in the textile field is very hard to properly appreciate. The changes it has made in the whole textile picture are doubtless far beyond the dreams of its creators. Today rayon has just as definite and integral a place in the industry as any of the natural fibres. Production of rayon yarns in 1935 reached a new record of 256,659,000 pounds. Of this enormous total, approximately one-third was consumed by the weaving and knitting mills in the South. And what is just as interesting, almost half of the rayon producing plants are now located in the South.

Without attempting to go over any of the ground being covered by other articles in this issue, it is interesting to note, for comparison, a few of the questions that were of interest to mill men when the *Textile Bulletin* began publication.

In one of the first issues was an editorial urging the

(*Continued on Page 66*)

Twenty-Five Years of Rayon Development

By H. W. Rose

The Viscose Company

RAYON felicitates the Textile Bulletin on its Twenty-fifth Anniversary and takes this opportunity, through its pages, to review a history that began with that of the Bulletin. In 1911, the year in which the Bulletin started a generation of service to the textile industry, rayon in the United States made a start on a commercial basis in the first plant of The American Viscose Co. at Marcus Hook, Pa. The company, which later changed its name to the present one, was the offspring of the union between American patent rights owned by Genasco Silk Co. of Lansdowne, Pa., until its bankruptcy, and Samuel Courtauld & Co., Ltd., of Coventry, England, which firm had been spinning artificial silk successfully for six years.

Before Commercial Development

On account of its commercial success more is generally known about the story of rayon since 1911 than before. However, Genasco contributed several years of valuable experience to the foundation of the industry in this country, and several men with that experience went into The American Viscose Co. Because of the fact that nearly every rayon company in the United States had European antecedents it is not generally known what efforts and contributions toward the manufacture of rayon were being made in the United States around the turn of the century. Arthur D. Little, of Boston, chemist and consultant, was in touch with the Englishmen, Cross and Bevan, at the time they first discovered the viscose process, in 1893. He entered into an agreement with them whereby he had rights to experiment with and develop the process in this country. The American Viscose Co. was formed in 1894 by him and his associates. That company bore no relation to the present Viscose Co. and did not engage in making yarn. They experimented with various kinds of viscose cellulose plastics for a few years and then disorganized.

Photo by Louise Dahl-Wolfe

Street Dress of Rayon

Cellulose Development

The Cellulose Products Co. was formed in 1900, again with the assistance of Mr. Little. The company procured the American rights and conducted experiments in a laboratory in Boston. No attempt was made to spin filaments, and it remained for the Stearn development of viscose yarn spinning in England to start work along the same line in this country. In 1901, General Artificial Silk Co. was organized, which procured the Cross and Bevan viscose rights from Cellulose Products Co. and the spinning rights as well as technical assistance from Stearn.

Meanwhile Arthur Little and his associates were working on cellulose acetate also. Experiments on viscose solution in Cellulose Products Co. led to the production of a cellulose acetate sheet and thence to the spinning of an acetate yarn. Little and his associates, Mork & Walker, evolved the first process in the world to be patented for spinning cellulose acetate rayon. The first patent covering the process was granted them in 1902. It led to the formation of Chemical Products Co. which in turn sold the rights to Lustron. This last company manufactured acetate yarn from 1914 to the time it sold out to Celanese in 1924.

Development Since 1911

This brief summary of the early activities leads to the period of phenomenal development starting in 1911 and continuing through these twenty-five years without interruption. Looking back now on the twenty-five-year period it can be seen that it was divided into three phases.

During the first ten years, 1911 to 1921, the original company was the only producer, with the exception of Lustron, which produced relatively small poundage. It was a period of pioneering, of introducing the yarn to new uses, of increasing its quality and its quantity. The second ten years, 1921 to 1931, saw the introduction of many new producers and the building of many plants; competition increased with production, and prices decreased accordingly. The third period, 1931 to 1936, has been a settling one. Prices hit bottom, rebounded and then settled down to comparative equilibrium, and rayon types adjusted themselves into fairly definite outlet channels.

The Marcus Hook plant started with the production of 150 and 300 deniers. The yarn in those days was wiry and unbleached. It was also very brilliant in luster, and its aid to decorative effects was responsible for its early popularity. It was already being imported and used in braids, trimming, millinery, knitting to some extent, and in weaving together with silk, cotton or wool. The yarn had to be heavily oiled or sized before any machine process, and after difficulties with broken filaments, spinners fluff and uneven tension due to its springy tendency, it finally produced a fabric which today seems metallic, coarse, and crude. Its wet strength was low, and a wet fabric could easily be pulled apart in laundering.

Photo by Louise Dahl-Wolfe

Tailored Rayon Blouse

Yarn is Improved

The next ten years saw decided improvements in the yarn. Constant attention was being given to improve the strength and at the same time soften the yarn. A variety of types were introduced, and as mills adapted their facilities to handle the new fiber, and as machinery manufacturers introduced new winding, quilling, warping, and knitting machines designed for rayon, its popularity grew and the demand increased. In 1920 the consumption of rayon reached nine and a half million pounds.

Today twenty-four plants in the United States make more than a hundred standard types, with a variety of sizes and of filaments for each size, of lusters from brilliant to chalky, and by three of the four rayon processes, viscose, acetate and cuprammonium. The fabrics have a variety today from fine sheers through rough crepes and even tire fabrics, from soft underwear materials through heavy drapery and upholstery fabrics, and from lustrous satins through chalky wash fabrics.

Co-operation Solves Technical Problems

The rapid development and amazing improvement has been accomplished through constant co-operation in the solution of technical problems between yarn producers, fabric mills, and machinery manufacturers. The most active period of development began following the temporary lull caused by the World War. The boom in textiles after the war, together with the extremely high price of silk during that period, focused attention on rayon and brought it into use in a great many new mills and types of fabric. The basic patents ran out about the same time, and, as there was a surplus of capital in the country after the war, a number of new companies were formed and plants were built to spin rayon. In fact, nearly all of the rayon companies manufacturing yarn today commenced operations in the nineteen twenties.

During the twenties supply and demand alternated between a sold up condition and one of accumulating yarn inventories. Each period of demand, however, broke all previous records for rayon consumption, and the ten years period showed an increase from nine and a half million pounds consumed in 1920 to one hundred eighteen million in 1930.

For a time the domestic production could not meet the demand, and imports of foreign yarns reached a peak of sixteen and a quarter million pounds in 1927. By 1930 production was sufficient to take care of normal consumption, and the tariff act of that year provided protection for the American industry against a flood of yarn from Japan, Italy and other countries where labor conditions and standards are far below those of this country. The use of rayon continued to increase and so did production.

Adopt Term "Rayon"

The word "rayon" was adopted in 1924 and immediately led to wider acceptance of the new fabrics. It rapidly cleared up confusion caused by the old term of "artificial silk," and, although two producers prefer today to use their trade names, the word rayon has replaced artificial silk generally, not only in this country but in England, France and elsewhere on the continent.

The Rayon Institute was formed in the late twenties. It performed a useful service in two years time by ac-

(*Continued on Page 68*)

DAVID CLARK

"Happy Birthday to You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

Having been a continuous subscriber for the past 25 years to the Textile Bulletin, it is with real pleasure that I express to you my appreciation and congratulations.

Your fearless and open-minded editorials have long been a source of pleasure and information as well as the helpful articles carried on your "Discussion Page," which have meant so much to me.—*R. H. Armfield, Supt., White Oak Cotton Mills, Greensboro, N. C.*

* * *

On learning that the Textile Bulletin is approaching its 25th anniversary, I hasten to express my appreciation for the fine work you have done for the industry. Your editorials have been able and sound, and the Bulletin has been most helpful in presenting accurate information to both management and workers in the industry during the trying times that we have been through. Your fight against radicalism and your continual advocacy of common sense and justice has been most helpful, and it is a pleasure to congratulate you and wish for the Bulletin continued growth and progress. — *S. M. Beattie, Pres. and Treas., Piedmont Mfg. Co., Piedmont, S. C.*

* * *

I am glad to have this opportunity of congratulating your most efficient organization on the 25th anniversary of the Textile Bulletin.

Since I first became acquainted with the publication, about 19 years ago, I have tried not to miss securing a copy, wherever business has made it necessary for me to be.

I have always found its technical articles most helpful to myself and my organizations, but the ideal which has most impressed me in the years I have been acquainted with the Bulletin and its very able Managing Editor, Mr. David Clark, is its unswerving loyalty to the manufacturers' interests, and the crusading spirit which has fought against any legislation or influence injurious to the full development of the industry, and to the highest standards attainable in relations between employer and employee, without outside and unfair interference.

I feel sure that in the future as in the past, the Bulletin will stand firm for what is just and right, regardless of the pressure of special groups to impose injustices upon the basic industry of the South.—*P. C. Story, Mgr., Randtex Mills, Randleman, N. C.*

* * *

Congratulations on your 25th anniversary, and for the sake of our cotton mills, I hope you will have many, many more. Permit me to commend your insistence upon revealing the facts in regard to our problems.

Allow me also to congratulate you upon your fearlessness in denouncing all the "isms" that are contrary to the faith of our forefathers.

Wishing for your Mr. David Clark a speedy return to vigorous health.—*J. C. Mason, Supt., Imperial Yarn Mills, Belmont, N. C.*

* * *

I am happy to be able to congratulate you and your associates on the approaching Silver Anniversary of Textile Bulletin and your association with it as editor.

I have had many blessings in this life, and high among them is your friendship together with that of Harvey Hill, Junius Smith and others of your organization.

The value of your work to the textile industry has been an outstanding contribution.

I wish you, your associates and the Textile Bulletin continued success. — *E. A. Terrell, Pres., Terrell Machine Co., Charlotte, N. C.*

* * *

We understand that you will celebrate your 25th anniversary of the Textile Bulletin during March, 1936, and we wish to congratulate you for the service which you have rendered to the textile industry through your paper.—*B. F. Hagood, Pres.-Treas., Glenwood Cotton Mills, Easley, S. C.*

* * *

I note that on March 5th, the Textile Bulletin will celebrate its twenty-fifth anniversary, and wish to take this occasion to congratulate you on the years of useful and constructive effort you have maintained toward the textile indstry.—*John G. Chapman, General Manager, Samoset Cotton Mills, Talladega, Ala.*

* * *

I desire to add my congratulations to the Textile Bulletin on its 25th anniversary. I feel that it has been an inspiration to many people in the textile industry, and through the medium of its various departments, has created interest on the part of many operatives to read about the textile industry, which they probably would

not have done if the Textile Bulletin had not been in the field.—*Allen Jones, Supt., Muscogee Mfg. Co., Columbus, Ga.*

* * *

We congratulate the Textile Bulletin on its 25th anniversary.

We congratulate David Clark and his able staff who have piloted the Bulletin through good and bad years, and who, by their good management and sound judgment, have made the Bulletin an outstanding textile publication in the United States.

May the next 25 years show even better success.—*Wm. C. Ryckman, Gen. Supt., Lane Cotton Mills Co., New Orleans, La.*

* * *

Please let me send my warm appreciation and congratulations to the Textile Bulletin on their 25th anniversary which occurs on March 5.

I am sure there is no other textile magazine that is more thoroughly and profitably read than the Bulletin and that there is none which gives the same thorough information on questions and policies relating to the textile industry that can be found in your paper.

It has been with sincere profit and pleasure that I have read your paper during the past twenty years and I wish for you a most prosperous and serviceable future during the years to come.—*S. W. Rabb, Supt., Erlanger Cotton Mills Co., Lexington, N. C.*

* * *

We are writing to offer our congratulations upon completion of your 25th year of publication.

In our opinion, during this period you have valuably served both the employers and the employees of the textile industry of the South and I feel sure that you have the best interest of the entire state at heart.

With all good wishes for your future success.—*K. P. Lewis, President, Erwin Cotton Mills Co., Durham, N. C.*

* * *

We wish to extend congratulations upon the 25th anniversary of the publication of the Textile Bulletin under your direction.

Through the Textile Bulletin we think you have rendered the textile industry telling and splendid service. You have not hesitated to speak out plainly and convincingly on many subjects which needed frank discussion for the best interest of our industry as a whole. Here at our mills for a long number of years your publication has been closely read and its position highly regarded.

Both you and your publication, in our opinion, deserve the hearty co-operation and support of the textile industry.—*Benjamin Russell, Pres., Russell Mfg. Co., Alexander City, Ala.*

* * *

"I wish to congratulate you on the 25th anniversary of the publication of your paper. I have been a subscriber to the Bulletin ever since it was first published and have found it very interesting and informative, and I believe your publication has done as much for the textile industry, both employer and employee, as any textile paper published. I wish you many more years of success and usefulness."—*T. W. Mullen, Vice-Pres. and Supt., Rosemary Mfg. Co., Roanoke Rapids, Va.*

* * *

We note with interest that March 25, 1936, will mark the 25th anniversary of "The Textile Bulletin," and desire to express our very sincere congratulations.

The longer the writer is in business the more admiration he feels for those who have the courage of their convictions, and your fearless arraignment of the enemies of the industry, whether ordinary garden variety of labor agitator or Communistic highbrow college professor, has always met my appreciation, and, in my judgment, is more than ever needed at the present time.—*John A. Law, Pres., Saxon Mills, Spartanburg, S. C.*

* * *

I wish to congratulate you on the twenty-fifth anniversary of the Textile Bulletin. I have been a constant reader of the Bulletin for a great many years and consider it one of the leading textile magazines.

The Bulletin has been of great service not only to the employer but to the employee throughout the textile industry. You have always been fair in giving both sides of any controversy that has arisen. I trust you will continue the service you are rendering through the Bulletin and it will continue to grow in the future as it has in the past.—*W. H. Hardeman, Manager, Consolidated Textile Corp., La Fayette, Ga.*

* * *

I understand that on March 5th you will issue a special edition in commemoration of Mr. David Clark's 25th anniversary as editor of the Textile Bulletin. I desire to congratulate both you and Mr. Clark upon this occasion.

During all these years, I have been an assiduous reader of the Bulletin, and when it comes I lay aside everything else and turn to the editorial page.

I am an admirer of David Clark. He is an exponent of the truth; he has the courage of his convictions; he has been a valiant fighter against the enemies of the textile industry, and he deserves the thanks and support of all members of that industry.

I hope he will live for many years to continue his splendid work in our behalf.—*Bernard M. Cone, Pres., Proximity Mfg. Co., Greensboro, N. C.*

* * *

I am writing to congratulate you on your 25th anniversary. I sincerely hope you may have many more useful years. I appreciate the Textile Bulletin in many ways, not only for the good, helpful information it gives out from week to week, but for its fairness and frankness in matters of right and wrong. It always speaks the truth without fear or favor and I always look forward each week to getting my Textile Bulletin with great pleasure.—*W. W. Cobb, Supt., Norris Cotton Mills Co., Catawba, S. C.*

* * *

I want to take this occasion to express my appreciation for your splendid efforts at all times in behalf of the cotton textile industry, and also for your stand on other matters for the good of our country.—*C. E. Hutchison, Pres., American Yarn and Processing Co., Mt. Holly, N. C.*

* * *

I wish to offer my congratulations on your 25th anniversary. I have taken the Textile Bulletin for the past 25 years and have found it most helpful. It has many interesting and instructive articles on all phases of the textile industry and keeps me in touch with the industry throughout the South.

Best wishes for your continued success.—*T. C. Pegram, Supt., Erwin Cotton Mills No. 3, Cooleemee, N. C.*

* * *

I wish to congratulate the Textile Bulletin on its 25th anniversary. During all these 25 years I have read the Bulletin and have found it very helpful and worth-while. I consider it one of the best textile publications published. —*Frank S. Lockman, Supt., Monarch Mills, Lockhart, S. C.*

Looking Backward

By John W. Fox
Duke Power Company

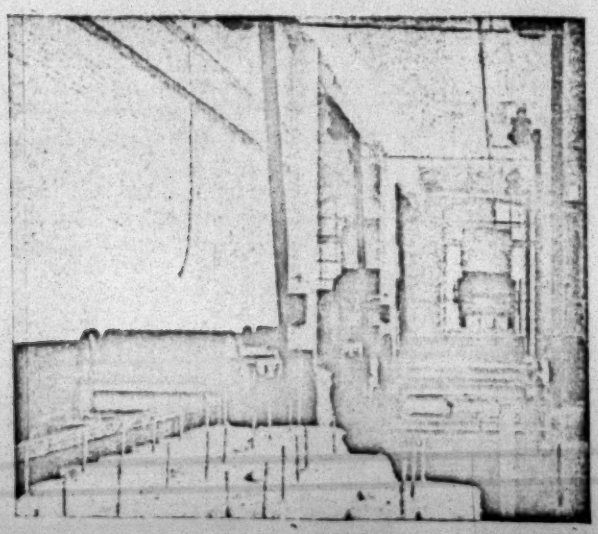
Progress in Power Application in Textile Mills

IN looking back twenty-five years, one can clearly see the progress and changes that have taken place in the textile industry. Even the type of buildings has undergone changes, as well as the equipment housed in the buildings. The manufacturing process in the opening and cleaning equipment for cotton and its preparation for the cards have been simplified, saving labor, by combining three separate machines into one. The revolving flat top card of today is largely the same machine, but the continual stripping device has made a cleaner atmosphere and better production. There has been a reduction in the number of roving processes by the introduction of long draft on those machines and a consequent reduction of operation. Long draft and high speed spinning with a larger spinning package, high speed spooling and warping, automatic temperature controls on the slashers and their kettles, high speed automatic looms resulting from better design and a higher degree of mechanical workmanship, all have made their contribution to a more efficient operation and production.

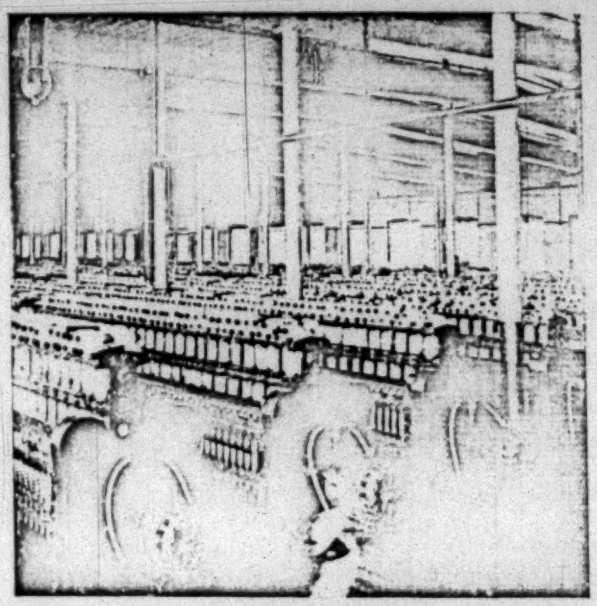
All of the above shows that there has been decided progress made, not only in the processes, but in the machinery equipment. And parallel with the advance, there has been material progress made in the power applications to the machines themselves, together with the increase in the power producing facilities.

Improvements in power generating equipment have resulted largely from the pioneering of large central power company stations. Efficiencies are available to the textile plants of today that could not have been attained twenty-five years ago.

The old fire tube boilers have given way to the more modern water tube boilers designed for the best operating pressure, temperature and efficiency. Water cooled furnaces have past the experimental stage and are available where economically justified. Hand firing has given place to stoker and pulverized fuel firing. The dependable Corliss engine has been replaced by the modern steam turbine, designed for almost any condition, from straight condensing operation to multiple extraction, and condensing operations to meet the necessity of process steam requirements. However, this equipment can be economically utilized only by skilled operation, carefully planned inspections and maintenance. Higher pressures with their steam economies demand higher investment costs for such equipment, with its need for better materials and precision manufacture, higher cost of replacement parts, scientific water analysis and treatment, and constant analysis of coal and ash.



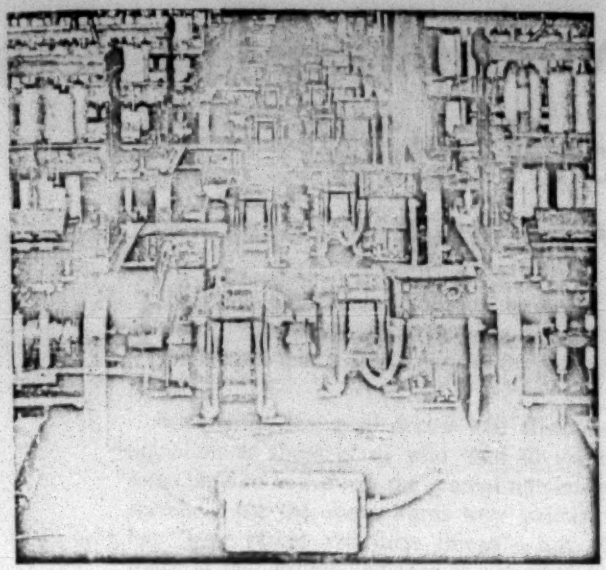
An Early Individual Motor Drive for Pickers



An Early Individual Motor Drive for Spinning Frames, direct connected to cylinder

In 1904 when the Southern Power Company first began service to the textile industry, the usual practice was the installation of very large motors placed on the floors of the respective rooms or in the "belt-ways." This system of drive had none of the advantages of flexibility and economic operation. A few years later this type of drive was modified by the installation of smaller motors on the ceiling, in an attempt to group certain machinery which tended toward a more flexible departmental operation. Twenty-two hundred volts was the common voltage in use, primarily the result of large motor sizes.

By 1910 the application of 4-frame drive had made its appearance, largely due to the engineering influence of Stuart W. Cramer. He had equipped the Mayes Mill



Individual Motor Drive for Spinning Frames, geared to cylinder

spinning room by 1908 and used 550 volts as the distribution system in his mill. As early as 1906 individual drive of spinning frames of 550 volts had been used directly connected to the cylinder, and I think it was in 1911 that the Dunean Mills of Greenville, S. C., made an extensive application of individual drive of spinning frames from motors through gears to the cylinder shaft. I am not overlooking the earlier installations of 1893 and 1894 at the Pelzer Mills and the Columbia Mills, but in 1911 the 4-frame drive and the individual drive in textile mills were on the eve of being standardized. The matter of variable speed motors for spinning frames had also been discussed before the Southern Textile Association in 1908, the year of its inauguration.

About this time it was recognized that the textile industry service called for a different type of motor affecting lubrication, torque, efficiency, and cleanliness. The manufacturers met the demand by the design of the "textile motor," and there has been steady advances in the design of this particular piece of apparatus with its improved efficiency, higher power factor, better insulation and lighter weight per horsepower. Oil ring bearings and waste pack bearings are gradually being superceded by ball and roller bearings. Probably the most noticeable advance in motor design is the lint-free or self-cleaning motor which has largely eliminated the "blowing-out" of motors with its consequent possibility of insulation damage.

It is now recognized that the 4-frame drive motor and individual loom or spinning frame motor have different starting and operating characteristics.

The old oil insulated starting mechanism for motor equipment have given place to the magnetic line starters with push button and shipper rod controls, with the proper time delays for overload and low voltage releases. The transmission of power from the motor to the individual machine has been a battle between gears, chains and belts which has not been definitely decided. The rocker type motor mounting with the flat belt and the V-belt drive are vigorously contesting the field of their respective applications.

Along with the changes in motor equipment and their starting mechanisms have come better wiring installations. The 2200-volt distribution system, with its lead covered in cable in conduit, is rapidly disappearing and is replaced by the open wiring or conduit system of 550 volts properly and safely grounded.

These advances in textile equipment and practices, coupled with changes in the economic order, have called for a higher degree of service both as to continuity and regulation from power companies supplying the textile industry. As a result of both improved practices and better equipment, the quality of such power service has been steadily improved to keep pace with the progress made in the textile industry. This demand for improved service has been met by the manufacturers in the development of transformers and circuit breakers of advanced design.

During the time that the individual mills and the textile manufacturers have been engaged in research for new and better equipment and practices, there has been a parellel activity by the power companies and the electrical equipment manufacturers. As new and better equipment has been made available, power companies generally have been quick to place such apparatus in use with the hope of anticipating, if possible, a better quality of service to the consumer.

The so-called modernization of textile mills has had a tendency to throw out of alignment the previously accepted figures of individual machine power requirements. Power consumption, as the result of the elimination of processes and increased machinery speeds, is somewhat

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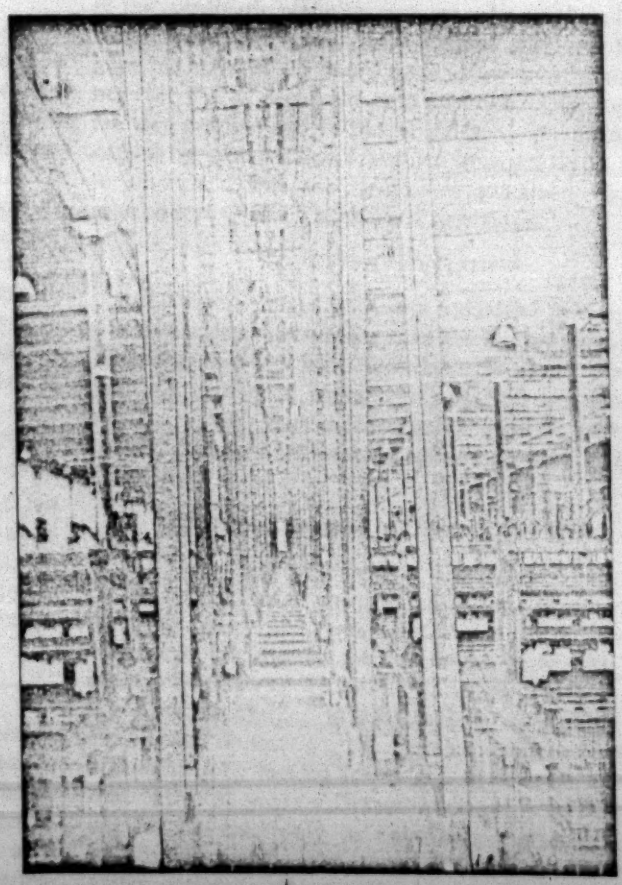


Four-frame Motor Drive for Spinning Frames, belt Driven

Textile Advertising Keeps Pace With Progress of Industry

By Junius M. Smith, Business Manager

IN 1759, Dr. Samuel Johnson wrote in his weekly *Idler*, "the trade of advertising is now so near to perfection that it is not easy to propose any improvement."

Apparently, the good doctor had about as much imagination as those of us who used to think there was some limit to how much the present administration could spend. Since the above words were written, advertising has "gone places and done things"—just about everything in fact except "balance the budget" and find the "forgotten man." Not even radio advertising has done that.

It isn't necessary to take the reader (if any) back to 1759 to impress him with the progress of advertising and, besides, as you may have inferred from other editorial matter in this issue, anything that happened prior to 1911 is irrelevant, unimportant and has no bearing on the case. These rambling remarks then will be confined to the enormous strides industrial advertising has made during the past quarter century.

Let's look at the record.

Examples of Early Advertisements

On the opposite page are reproduced several advertisements from Vol. 1, No. 1, of Textile Bulletin, alongside advertisements placed by the same companies in recent issues of this journal. You will note the former contained practically no information except the name and address of the company and the products manufactured. Of course, not all industrial advertising of that day was as crude and simple as these specimens, but for the most part it showed little care in preparation. Apparently it was regarded as a necessary evil and it is reasonable to assume that readers of industrial journals regarded it in the same light. That this conception of industrial advertising has completely changed is strikingly apparent in the reproductions of recent advertisements, with their attractive layouts, graphic illustrations and interesting messages.

One of the interesting developments of the past few years has been the increasing number of advertising agencies serving industrial accounts, and we feel that the work of these agencies has been an important factor in raising the standards of advertising in this field, particularly as to its physical presentation.

Advertising Improves With Products

Quite naturally the improvement in the appearance and quality of advertising has been followed by a steadily mounting reader interest, until today, both plant officials and operating executives regard the advertising pages as an important part of their industrial journal and as a constantly up-to-date source of suggestions and information. New and improved equipment, methods and materials are constantly being introduced in this and other fields and it is largely through the medium of industrial advertising that the mill president, superintendent and overseers keep themselves acquainted with developments that give promise of increased production, better quality and lower operating costs.

The reliance which customers or prospects are putting in advertising as a source of this information makes it all the more important that the advertiser, in his own interests, be conservative in the claims he makes for his products. The wise advertiser knows that the average mill man has too much practical knowledge and experience to be fooled by silly assertions anyway, and that they would react unfavorably in the long run.

Industrial advertising, even in the old days, was never guilty of the gross exaggerations that characterized general advertising, and it is our firm conviction that practically all advertising appearing in the better known industrial journals today is absolutely sincere, honest and trustworthy.

No review of the progress that has been made by industrial advertising would be complete without mention of the systematic planning that precedes nearly all advertising campaigns today as compared with the hit and miss methods of 25 years ago. Now most companies, near the end of each year, make an annual appropriation for this purpose and in the majority of cases, the publications are selected and schedules arranged for 12 months in advance. This has resulted in sustained, consistent schedules instead of haphazard insertions.

Consistent Advertiser

Probably no company in any industrial field has been a more consistent advertiser than the Draper Corporation. This company has kept "everlastingly at it" year after year, through good times and bad, and we think it is worthy of note that even during the hectic period just passed, Draper's advertising schedules were religiously maintained.

Human Interest in Technical Copy

The recent advertisement of this concern reproduced on the opposite page was selected because it impressed us as being a very fine example of how a bit of human interest can be injected into technical copy with telling effect. "He Carries A Cane to Make His Friendly Greeting More Expansive," is the interest-arousing title beside the unusual illustration. The reader wants to know more about this jolly looking fellow and so he reads on to find that "after 50 years a Draper workman, Pat Dillon, has use for his cane only to wave happy greetings to the friends he meets." Also, that Pat is "an optimist—a go-getter optimist—who *"walks in the rain to keep fit to*

(*Continued on Page 66*)

Textile Industry in Fighting Mood

By Claudius T. Murchison

President, The Cotton-Textile Institute

THE most encouraging augury for the immediate future of the cotton textile industry is that the industry is in a fighting mood. And a fighting spirit is needed if the multitude of problems which beset the industry on every hand are to be dealt with effectively.

That fighting spirit evidences itself daily. It appears in the industry-wide determination not to be stampeded into individual actions that lead inevitably to mass suicide, in the measures taken to minimize the confusion which followed the collapse of NRA and AAA, in the resistance to imposition of the Ellenbogen bill and in efforts to obtain from the Government recognition of the fact that the industry's contribution to the national recovery program entitles it to effective protection in both domestic and export markets against foreign low-wage competition.

Fortunately the industry is organized soundly — by groups, States, regionally and finally, in the Institute, nationally—to take full advantage of its remarkable capacity for intelligent cooperation. Also, fortunately, the industry has had a rebirth of confidence in itself, in its ability to achieve objectives, as, for example, the voluntary maintenance of the fundamentals of the former NRA code.

When the Supreme Court abolished the NRA last May there were predictions—some of them within the industry—of a headlong return to the "every man for himself" policy with all that such a rule has meant to the industry in the past. But to the everlasting credit of the industry the great majority of the mills never faltered. Indeed, there was a stiffening of the lines and the display of determination against any let-down of standards more than justified the Institute's proposal of an industry-wide agreement to establish those standards firmly on a pledged basis.

The industry faced another crisis in the invalidation of the AAA. To add to the difficulties of processing tax refunds was the prospect—which threatens still—of a retroactive tax levy as an important feature of a substitute farm relief program.

Again the industry as a whole refused to be swept off its feet into a demoralization which seemed inescapable. In the full knowledge that it was risking the very real possibility of a retroactive tax, the industry, through the Institute, announced its intention to proceed as promptly as possible with processing tax adjustments or credits in accordance with sales contract clauses.

Obviously this action committed the industry to oppose as vigorously as possible the proposed retroactive tax—a fight which, as this is being written early in February, is being prosecuted with every ounce of energy the Institute can command and in every quarter where reason and justice can still obtain a hearing.

Likewise, the industry is united behind the Institute in demands for the protection of its domestic markets against the inroads of Japanese cotton goods and for effective governmental assistance to regain export markets lost to Japanese competitors.

Before this appears, Section 22 of the former AAA, authorizing the President to fix quotas restricting importations of agricultural commodities of agricultural manufactures, may have been re-enacted as an amendment to the Administration's soil conservation program. Urged strongly by the Institute, such authority in the hands of the President would, it is believed, be a powerful factor in the industry's behalf toward negotiation of equitable trade pacts.

The recent House Labor Committee hearings on the Ellenbogen bill offered another example of a united industry in action. Under the direction of an Institute committee of leading mill executives representing all sections of the industry, an impressive case was made out against the bill.

A favorable report on the bill was regarded as a foregone conclusion as soon as the personnel of the sub-committee which was to hold the hearings was made known. Nevertheless, "for the sake of the record," the Institute's case, presented by its own staff as well as by practical mill executives and officials of other groups within the industry, met every challenge presented in the bill.

At the conclusion of nearly two weeks of hearings, it seemed likely that if the Ellenbogen bill is ever reported to the House it will be only after a substantial modification and with little hope of reaching a final vote.

Less spectacular but equally important are the industry's efforts to increase the consumption of cotton goods by the expansion of existing uses and the development of new outlets. A constant promotional effort, supplemented by intensive research, which has been adopted by other textile fibers as a model for similar activities, is one of the Institute's major functions. The results may be seen in every field from the unprecedented popularity of style cottons and cotton household fabrics to the acceptance of the cotton fabric re-enforcing membrane principle in rural road construction.

It is evident that the cotton industry is in a fighting spirit all along the line. With that will to win abroad from Maine to Texas 1936 may easily be made the turning point toward an era of real prosperity for the industry.

Textile Advertising Keeps Pace With Progress of the Industry

(*Continued from Page 62*)

enjoy the sunshine of tomorrow." And then note this gem of a tie-up: "The homely philosophy of optimism—the go-getter optimism with faith in the future and the will to win—built the American Textile Industry. It kept builders of textile machinery busy during the dark days of our depression designing new tools to fit your needs for a better tomorrow." Even if I had never heard of Draper Corporation before, I believe this advertisement would have gone a long way toward convincing me that here must be a pretty good house to do business with. There can't be much wrong with a company which has a loyal, happy employee like Pat Dillon, nor that has sufficient faith in itself and the industry it serves to keep busy designing "new tools" throughout the darkest period this country has known.

Draper Corporation's advertising is not only consistent, but it is consistently good. It might not take first prize in an exhibit of modern artwork and typography, but for sincerity, effective simplicity, and evidence of the copy writer's thorough knowledge of his own products, his customers' problems, and human nature as well, we rate this advertising second to none that is running in journals in this field.

Since 1922, Draper advertising has been under the direction of W. I. Stimson, agent, and has been prepared and placed by the company's advertising department, of which William H. Chase has been the head for 14 years.

Perhaps one of the most unusual series of advertisements that has ever appeared in Textile Bulletin were those written by the late Chas. E. Carpenter, former president of E. F. Houghton & Co., and inserted weekly in this journal for several years. A typical advertisement in this series is reproduced here. Mr. Carpenter was thoroughly sold on the value of advertising and although his style may have been a little radical at times, there is no disputing the fact that his advertising was widely read and discussed.

Unusual Copy

Possibly the following excerpts from the accompanying advertisement explains why:

"It so happens that whensoever one makes so bold as to do something out of the ordinary, something to which folks are not accustomed, one attracts to oneself adverse criticism.

"And as it is out of the ordinary to devote advertising space in technical publications to heart to heart copy, of this sort, which is intended to supply the personal touch between the head of the company and its customers, these advertisements are being criticised, to which criticism I have no objection, for they are intended to be read. If they are only read, anything that is the result of the reading is of small matter.

"I consider it undignified for the head of a large concern to write the advertisements, is what one critic wrote. But I do other things that are perhaps even more undignified. I work in my shirt sleeves if it be warm; I soil my hands and clothing in my work; and I work like the mischief.

"I seldom sign a check; never make a deposit; never see a bill; never engage any employees, business or private, excepting my own secretaries, not even by yacht captain; never design or prepare the layout of advertisements; make no personal or business engagements; purchase no transportation, make no hotel reservations, or do a single one of the thousand and one things which most men do, who think they are not doing detail. I can employ persons to do all these things better and more economically than it is possible for me to do them.

". . . . But notwithstanding this belief, I personally do my own love making; purchase gifts for those I love and admire; pay social calls and pen social correspondence.

"I feel that 'Big Business' has done much to take the old-time human touch out of business. I cannot possibly call on each one of the company's 35,000 customers, as much as I would like to do so.

"But I can produce the original copy for messages to these customers, and I take quite a delight in doing so, and I am going to continue to do so for some time to come, because I know that folks like to know that 'The Old Man' of the concern who enjoys their patronage, thinks of them, in spite of 'Big Business.'

"Personally I think that the preparation of the original copy of messages to our trade is the most important task in our business, and I know of no good argument to prove that the President should not perform the most important task."

Industrial advertising has indeed made remarkable progress during the past quarter century, and when we consider its modern typographical dress, striking illustrations, and splashes of color, we are tempted to repeat Dr. Johnson's prophesy.

But we won't. We'll just wait and see.

"Times Do Change"

(*Continued from Page 55*)

formation of a strong organization of Yarn Spinners. The reasons set forth have a very familiar ring. There was overproduction then, spinners were selling under costs and buyers were in control of the market. How times do change!

A series of articles on the "Electric Drives in Cotton Mills" was featured in early issues. Contributions for the Discussion Pages showed reader interest in drafts, length of laps, the weight of warps, and there was quite a bit of talk about "The Kiss of Death," this being in the day before the self-threading shuttle had completely eliminated the practice of "shuttle sucking."

The frequency with which superintendents and overseers changed jobs in those days is clearly reflected in the large number of personal items published during the first years of the *Bulletin's* existence. For instance, 82 such items appeared in the very first issue. This turn-over has been steadily reduced through the years and is, of course, one of the healthy developments in the industry.

As was said at the beginning, 25 years is a long time. The years go 'round and 'round and we come out here in 1936, just a little bit amazed that we have been "through the throughs" and are still here to watch the textile wheels keep turning.

Twenty-five Years of Rayon Development

(*Continued from Page 57*)

quainting the public with the style uses of rayon and demonstrating that rayon had passed through the pioneer stage and was generally acceptable for house furnishings and clothing alike. The work of the Institute added impetus to the rapid growth of the new textile. During that period the consumption of rayon passed that of silk for the first time, and continued until it has now more than three times the consumption of silk.

Acetate rayon began to come into its own in the late twenties and during the past five years has filled an increasingly important place in textiles. Acetate alone makes distinctive fabrics and combined with viscose makes fabrics that neither can make alone. The acetate percentage increase has been large, the 1935 production being 550 per cent of 1930 but the relation between acetate and viscose percentage of total production has changed very little over the past several years. In other words, while acetate poundage has increased in a spectacular manner viscose has increased approximately in proportion.

The geographical distribution of this growth in rayon is interesting. The first plant, as mentioned, was in Pennsylvania. The second, Lustron, was in Boston but no longer exists. The second Viscose Co. plant was in Virginia, and, after 1917 when that plant was built at Roanoke, several companies were built in the State until Virginia, with five plants, became the producer of more rayon than any other State. Tennessee, with four plants, now leads, since the Hopewell, Va., plant is discontinued. North Carolina and Georgia, with one each, give the South a total of ten plants of the total twenty-four and a production of approximately 48 per cent of the total yarn in 1935.

South Consumes One-Third

The South consumed approximately a third of the rayon yarn in the country. The other two-thirds are divided equally between New England and the Central States including the Middle and Far West. The Piedmont section of the Carolinas turns out a predominating volume of rayon woven goods and hosiery. Weaving mills in Virginia, Georgia and Alabama use a quantity of rayon as do the hosiery mills of Tennessee and neighboring States. Knitting of rayon underwear is done by two of the rayon yarn producers in the South, but otherwise that industry is largely in the Central and Middle Western States. The other branches of the textile industry using rayon are also in the Central and New England States, mainly woolen, braid, narrow fabric, ribbon, lace, millinery, plush, and velvet.

The country is at present taking an active interest in spun rayon. It is being spun on cotton, woolen, worsted, mohair, and silk spinning machinery. It makes a variety of knitted and woven fabrics that combine attractive features of the other fibers and contribute new fabrics to the textile market. These new uses of rayon together with its steady improvement in quality, and broadening of types and versatility insure its continued growth in the future.

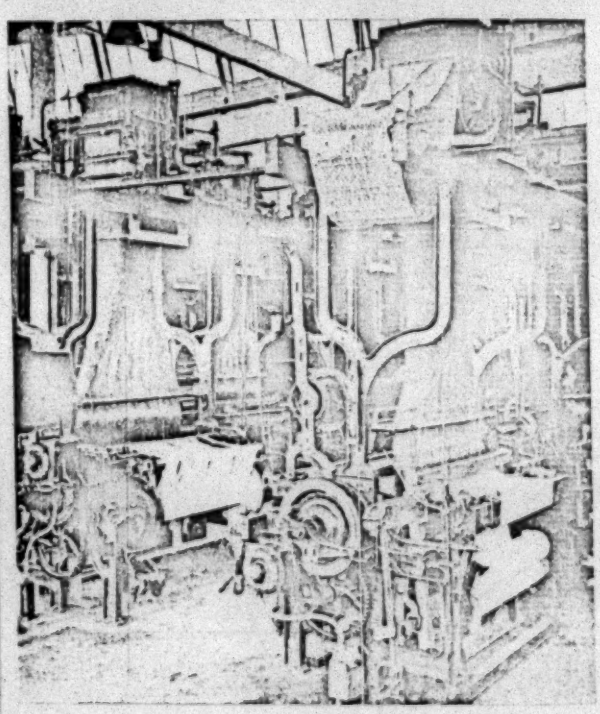
Looking Backward

(Continued from Page 61)

of an unknown factor. This calls for further investigation.

The larger and growing knowledge of our mill engineers and mechanics is focusing their attention more on testing equipment for speed, power input and efficiency of operation.

During the last twenty-five years the matter of mill lighting, or illumination, has undergone a substantial improvement. The earlier carbon lamp has been supplanted by metallic filament. The arc lamp has been replaced by the incandescent. Indirect and direct lighting systems have been in use. Mercury vapor lighting, daylight lamps, and combinations of both, all have had their periods of rest and trial for usefulness. These changes



Individual Motor Drive for Jacquard Looms

have resulted in much better illumination of the mills with less strain on the operator's eyes. The sight meter or light meter is now in common use and the mill mechanic can now read the actual light intensity in any room or on any machine.

In the review of the textile industry as outlined above, the writer necessarily has had to summarize in a few words changes in methods, equipment, and processes on which one could write a complete article of each step of the progress that terminated in the change. Pages could be written on the struggle for the recognition of long draft spinning, of the controversy and arguments around chain and V-belt drives, and of the value of individual loom drive. But it is not within the province of this article to give the reasons for change but to enumerate the actual changes that have taken place in the textile industry.

In another column you will find a review of the changes that have taken place in the illumination of textile mills.

A FABRIC IN HAND IS WORTH

two on the shelf

. . . if it has that smooth, supple "feel" of quality. For fine finish is becoming a factor of greater and greater importance in over-the-counter selling today. You owe it to your sales to give your fabrics as soft, full and drapey a hand as modern methods and materials can produce.

Our CREAM SOFTENER and SPECIAL FLANNEL SOFTENER E are guaranteed to give your products *finish appeal*. They are outstanding achievements in the making of textile chemicals. What they have done to help other manufacturers solve their softening and finishing problems they can do for you. Arrange for trial tests. Our staff will give you full cooperation in adapting these and other textile specialties to your individual requirements.

CREAM SOFTENER—A sulfonated tallow softener recommended for any grade of cloth whether dyed, printed or bleached . . . emulsifies readily in water . . . will not yellow . . . holds white indefinitely . . . excellent for white piece goods, knitted fabrics, hosiery, voiles, crepes, silks, or cotton and silk and cotton and rayon mixtures.

SPECIAL FLANNEL SOFTENER E—A specially balanced mixture of sulfonated tallow with higher titre waxes—an ideal softener for finishes where a fuller hand and a stiffer feel are necessary.

American Cyanamid & Chemical Corporation

30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

"Aunt Becky" Sees It Through

By Mrs. Ethel Thomas Dabbs of Textile Bulletin Staff

DURING the past twenty-five years there have been so many improvements in everything pertaining to textiles, that the story is more like a fairy tale than an array of facts.

Years ago, superintendents and overseers seemed to have the idea that to be "hard boiled" was the first prerequisite, and absolutely necessary to successful operations. The one who could be the meanest and cuss the biggest, was looked upon as most efficient. There must be plenty of overseers and superintendents of today who are ashamed of their attitude, habits and practices of twenty-five years ago.

In those days when children were considered necessary for the operation of spinning rooms, overseers of that department would have had to possess the patience of Job (and no one did) to contend with the mischievous youngsters. In fact, many an overseer lost his patience to the extent of laying rough hands on children—and sometimes had to lick or be licked, when an irate father came down to "see about it."

Twenty-five years ago there was little improved machinery, compared to present-day equipment. Labor was scarce and it was hard for mills to keep enough operatives. "Factory folk" were considered "below par" and country people were a bit doubtful about leaving gulley-washed farms, a meager existence and freedom, for new and unknown adventures where it was said that "money was plentiful" minus personal liberty.

Help Was Often Stolen

A superintendent had orders to "run the mill." One who couldn't keep help soon had to get out and hunt for another job. Small wonder then that superintendents were not always "on the square" with each other, and that they would get each other's operatives, honorably, or otherwise.

Mill publications, or rather, textile papers, carried advertisements galore:

> WANTED—All kinds of cottor mill help. Good houses, good wages, free transportation.

And they got "all kinds"—good, bad and indifferent. References were not required. Morals were not considered. If one could spin, spool, run cards, slubbers, intermediates, or weave, was all that mattered in most instances.

If such advertising did not bring favorable results, the superintendent would send a trusted employee to other mill towns "on a visit." He would be furnished expense money, and would get so much per head, for every experienced operative he could persuade to move. But woe unto him if he got caught in the transaction—and some did, to their sorrow.

This confederate (like so many today) thought more about the fee he would receive than about the veracity of his statements, and often stretched the truth till it was unrecognizable. But people (like so many today) swallowed hook, line and sinker—believed every word uttered by a stranger, who was interested in nothing but lining his own pockets with cash. His tales of unheard of advantages and favors influenced many to make changes that they bitterly regretted, and they would move back as soon as possible.

Labor Turn-Over Was Terrible

Labor turn-over was terrible and very expensive. Every day was moving day for someone. It was no trouble to get a job. To get mad and quit or to put in a notice was about the only thing that relieved the monotony of existence. To see a man slam off his looms, grab his hat and coat and march out, created excitement, comment and admiration all over the weave room. *There* was a man who wouldn't stand for "slack talk" from the boss! He was a kind of a hero to the unthinking. A man with grit, backbone and "what it takes!"

I knew a man who used to quit so much that it was said, "When his wife saw him coming with his hat on the back of his head she would pull her apron off and go to packing, the old rooster and hens would run up, fall down on their backs and hold their feet up to be tied and the dog would drag his rope in."

Long Hours and Extra Work

Sixty hours a week! Think of it! Then think of the pay—often less than $1.00 a day. Work was supposed to start at 6 a. m. and stop at 6 p. m., with an hour off for lunch. But the wheels were always turning full speed ten minutes before time, morning and noon, and operatives were expected to be on the job. On Saturdays, with the above hours adopted, work stopped at 11 o'clock, and we spent till 12 cleaning up—a free service, but everybody took pride in it. Clean, well oiled machinery would run better, and we knew it.

Going to work so early in winter, through rain, snow, mud and slush, the only light a smokey lantern, made many a "hill billy" wish he had never heard a mill whistle. Some terribly bad mornings people would wake to that shrill call to work, turn over and go to sleep to be awakened by a second hand banging on the door and begging them to get on the job. But they would have "sick headache," "sore throat," or a "tummy ache," and there was no one to dispute it.

Long hours, short wages, no conveniences. But people had better homes, better clothes and more money than they had ever had before, and were, for the most part happy-go-lucky and care-free. Some of the best people I

have ever known—not educated except in experience—but possessing sterling qualities that made them show up "like diamonds in the rough," grew up through hard knocks to be understanding and sympathetic leaders in progressive textile fields. To them and to their rugged honesty and sincerity of purpose, much credit is due for the changed attitude and opinion of the public in general toward mill people of today.

Twenty-five years ago mill people paid little attention to their personal appearance. They were pale and sallow from long hours in improperly ventilated rooms, and would go "up town" with lint in their hair and on their clothes. They could be spotted anywhere. But now—oh, boy! Our mill girls are as pretty, well dressed and as charming as any girls anywhere.

Improvements Not Appreciated

When mill owners began to take pride in their people and villages, they were looked upon with suspicion, and often met with strong opposition. The "old swimmin' hole" or a tin tub was all anyone wanted for an occasional bath. Running water in the homes was "not fitten to drink," and people would walk a mile to get water from an old spring where more likely than not, cows were running loose around it. Bath tubs were found ideal for salting pork in, or for a storage place for "kindling," when they were first introduced.

A mill superintendent was once showing me over this improved mill village. Water had been put in and the windows screened; now they were wiring the houses for lights We stopped at a house where the lineman had just arrived with a roll of wire, and a tall, angular typical mountain woman came to the door and accosted the superintendent as she eyed the roll of wire suspiciously:

"What you all fixin' to do NOW?"

"We are going to give you nice bright lights like we have in the mill," was the reply. "Won't you like that?"

"I don't want 'em!—I won't have 'em!" emphatically. "You done gone an' shut all the air outen the house with them old 'screams,' an' now you want to burn us up! A taller candle or a lamp is all I want, an' I tell you right now I ain't goin' to mess with them new fangled things an' get us all kilt!"

How well I remember the consternation and indignation of weavers when Draper looms began to be talked. We had gone from mouth-threading to hand-threading shuttles, were running six looms, could watch every inch of cloth and make it perfect, drew $1.10 per day on an average, and were contented as things were. We did not believe the tales told about Draper looms. It was absolutely impossible for a loom to "thread its own shuttles" while still running, and make the change without losing a lick, and nobody should fool us! Also we were told that the loom would stop when a warp thread broke—that it COULDN'T make bad cloth! Work would be easier, too!

A big group of weavers got together and—there were so many we could not talk big if we had wanted to—but we very politely told the officials we were happy and didn't want a change, and it was postponed. Later, we all became more civilized, and agreed to try the "pesky things." The only thing we hated about it was, a few weavers were out of jobs, but they were for the most part undesirable, though they found work at other places.

Only the higher officials had automobiles. No operatives and few overseers dreamed of owning a car. Occasionally some family went on a spending spree and bought an organ, and the neighbors would drop in on Saturday nights and have a singing. It was a great day when an agent for graphophones or phonographs with "morning glory horns" made his appearance and induced the really courageous to buy one, with a small payment down and a little each week till paid for. But only "sacred music" was tolerated. If Susie brought a dance record home, Ma went on a rampage and said the devil shouldn't enter HER house dressed up in music! Then "Little Brown Jug" was carried back and exchanged for "Home, Sweet Home!" Telephones were only for the rich and a radio would have scared us half to death had there been such things.

But every year brought changes for the better. Sally combed the cotton out of her hair and brushed her clothes before going "up town." "Pa" took to shaving and changing his shirt twice a week, and "Ma" took more pride in herself and home. Business picked up. Wages advanced a bit. People, many of them, saved money even thirty years ago, and bought homes.

One amusing thing happened when the mill owners thought it would be a good thing to introduce home economics to the wives and mothers. And were they indignant? Why it was a grand insult to have a young thing just out of Winthrop College coming around to teach them to cook. Hadn't they been cooking five, ten and twenty years. No, sir, they wouldn't have her! But mothers were finally reached through their children, who were taught in school; the girls would try out new recipes at home, and now there are no better cooks to be found than the wives and mothers in cotton mill villages.

Even twenty-five and more years ago some of our leading mills had community centers and organized play. The first girls I ever saw in play dress were at Proximity Mills in Greensboro. They wore "middy" blouses and full bloomers, fastened down below their knees over long stockings. Some of the older ladies were shocked almost to death, and felt "scandalized" to see girls in such attire. I wonder what they think now!

Where Do We Go From Here?

Today, those who have work in modern mills are the most fortunate people I know. They have nice homes to live in with rent less than the upkeep. They get coal at reduced rates. Their children have the best of educational advantages. Hours are less and wages more. Every home is nicely furnished. Most people have radios and keep up with important events. They take daily papers. Nearly every family has a car. Every mill one visits is surrounded by nice looking cars belonging to operatives. They carry insurance, belong to fraternal orders and are leaders in church and Sunday school work.

Many of the young men and women excel in vocal and instrumental music. They are talented speakers. They have demonstrated the fact that they can hold their own anywhere, and walk away with the highest honors. The

(*Continued on Page 86*)

Unsung Heroes of the Textile Industry

Paper Carriers Noticed Only When They Give Trouble

By C. H. Campbell

Sonoco Products Company, Hartsville, S. C.

CONTRIBUTING such a vital service to its user, and yet making no outward show of being an important item in production, the paper carrier, cone, tube, spool, et cetera—is indeed an unsung hero of the industry. In the use of the paper carrier it might be said that "no news is good news." By this we mean that even when paper carriers are used in considerable quantity, some manufacturers consider them of no great importance. This attitude, in itself, is a good indication that manufacturers of paper carriers have done their work well. If the paper carrier is not properly made, sufficient trouble will result to very promptly impress the user with its importance.

Must Be Precisely Made

On first consideration, the paper cone is considered a simple thing—just a "gadget" made from a sheet of paper wrapped in the shape of a cone—somewhat like the ice cream cones for which once we spent our pennies at the corner store. Yet, in reality, the paper cone must be precision amplified. When one considers that the cone must fit the winding mandrel with the snugness of milady's glove, and that the slightest variation in fit will result, in most cases, in a badly wound package, it is more readily seen that there is more to the paper carrier than appears on the surface. Naturally, any defect in winding the package will result in poor delivery of the yarn to the knitting machine.

However, precision in fit is only one of the technical requirements of a cone. The paper from which it is made must be of just the right texture—not too soft or not too hard. The surface finish, of necessity, must be perfect for the particular yarn with which it is used. It must be so constructed that it will prevent slippage of yarn in the primary winding, and yet sufficiently smooth to eliminate hnging and breaking when the last few layers are being delivered to the machine.

The paper cone, being the most important of the various types of paper carriers, and its requirements the most exacting, it is only natural that its improvement has been greater than any of the other units in the rather extensive field. Thus, the following observations have been made principally about paper cones.

Twenty years ago the user of paper cones was modest in his demands of the cone. This was a forced condition, however, since there was but one type of cone made—one which was cut square at the base and point, with the conventional corrugated surface. Whether a manufacturer used the finest silk yarn or the coarsest cotton twines, the same cone was used. The problem of using yarn to the last strand off such a cone didn't even occur to the user—and if the package reached his knitting machine without crushing, a smile of satisfaction can be imagined.

Cones to Meet Specific Specifications

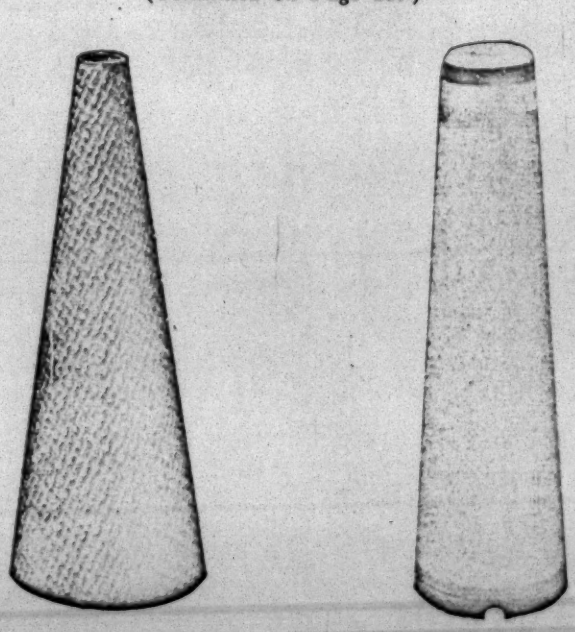
Time and constant research have changed this situation. Today, the user may have a cone made to his particular requirements. He may select one of three different corrugated surfaces: fine, medium or coarse; or he may select a ground velvet-surface. The latter cone has the ideal winding surface for fine yarns. The nose-tip finishes are varied to best fill the requirements of his particular yarn, and he may choose the one which fits his needs most adequately.

Color has been added to the cone of today, not for the purpose of decoration, but which may be used as identification of yarn. They are made with a variety of colored lacquer tips which serve not only to identify the yarn but as a protective coating for the cone tip. This feature adds additional insurance against any roughness on the tip that might cause the yarn to hang and break.

New Surface Vital Improvement

One of the greatest contributions toward paper cone improvement during the last quarter century was the development of the type known as the velvet-surface cone. This is a ground surface which is of just the right texture to allow the yarn to imbed itself and prevent any slippage

(*Continued on Page 139*)



Left: The 1911 All Purpose Cone.

Right: The 1936 Model Cone with three color lacquer Tip, notched and grooved at the base for packaging Rayon to be used on Magazine Creel.

The Changes in Twenty-five Years In One-Shuttle Weaving

By The Draper Corporation

THIS article is written as a review of improvements in plain goods weaving machinery in the past 25 years. Our field is not confined to plain goods looms. We build looms for both plain and fancy fabrics made with one kind of filling—that is, fabrics that do not require a drop box loom.

This review will cover looms of the type we build.

Twenty-five years ago, in 1911, the Northrop automatic loom had been in use for 17 years, the Stafford shuttle-changer for about seven years.

There were 216,717 Northrop looms and 10,146 Staffords in American cotton mills, giving them a weaving equipment that was from 37 to 40 per cent automatic.

The ordinary weaver's set of Northrop looms was then about 16. A few mills whose product was print cloths or other simple weaves did run 32 to 40 looms per weaver, but the number of such mills was so small they were outstanding examples.

Today the weaving equipment of American cotton mills is 95 per cent automatic looms. With bobbin girls to keep the batteries filled, weavers are running 100 and more loom on many plain weaves; and on the more difficult weaves the number of looms per weaver has been increased in like proportion.

This great improvement has been made possible by the steady improvement through this quarter century of the loom and the devices on the loom that have made weaving more and more automatic; and by the better warps and better filling now supplied to the weave room because better looms have made it economically worth while to improve yarn preparation.

The improvements to the loom have included practically every mechanism on the loom, harness motion, pick motion, drive and brakes, let-off, take-up; many improvements to the battery which culminated in the introduction of the No. 21 Battery in 1927; the first sliding Feeler in 1918 and the Midget Feeler in 1926; the Sliding Bar warp stop motion in 1925 and its bar with bevelled teeth in 1928; and the Stafford thread cutter in 1925.

Loom accessories have kept pace with the loom. Important improvements in shuttles and bobbins have contributed n erially to the smoother and more efficient operation oi the loom.

These improvements gradually have eliminated the weaving faults that formerly took the time and attention of the weaver until she now has little left to do but to tie in broken ends and watch the matching of the pick on weaves requiring a feeler. The work of filling the batteries is generally given to bobbin girls.

They have resulted, too, in great improvement in the quality of cloth produced, reduced the percentage of seconds and eliminated much waste.

The mechanical precision and finished of the loom parts has been wonderfully improved at the same time.

In 1911 looms were built with cast gears and there was very little machine finishing of the parts of the various loom mechanisms.

Better Looms at a Low Price

Our company became convinced about that time that further improvement of the automatic devices on the loom called for better and in some cases accurately finished parts that these various mechanisms might operate together with harmonious precision.

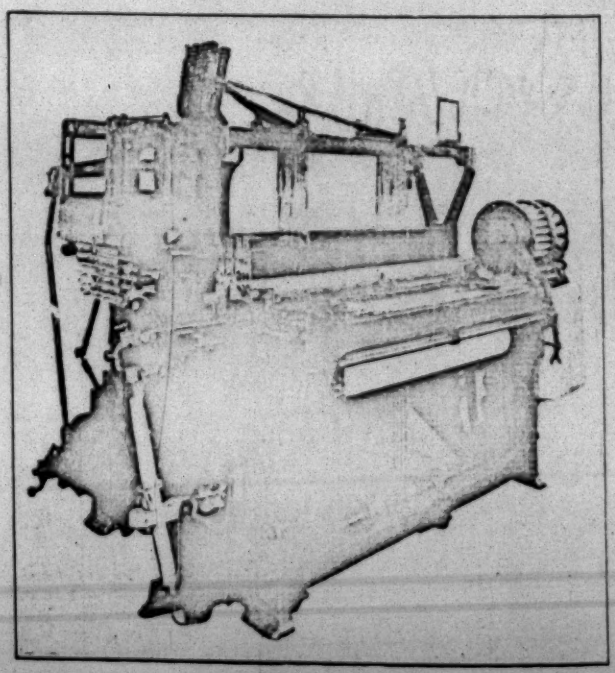
It was quite possible to build carefully finished looms by methods then in vogue for building precision machines; but the cost would have entailed a capital charge to the mills that the industry could not stand.

A cotton mill requires a very large number of looms. Looms must be built to sell at a low price. They are sold at a price per pound that is lower than any other American machinery that is as intricate.

To build at this low price a loom that was ever becoming more and more complicated had been our problem from the inception of the Northrop loom. To build this complicated machine with precision finish added a new problem.

How it was solved is a story with as much bearing upon loom development during the past 25 years as any list of patented mechanisms.

(*Continued on Page 138*)



Modern Draper Loom

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

Noting that you are to celebrate your 25th anniversary on March 5, this year, brings to mind many long and pleasant memories, as I have been a constant reader of your paper since its first publication.

Its many timely articles have been a great benefit to me during these years, and especially, have I prized the splendid editorials that have been written from time to time. I hope and trust that you shall continue for many years to come to bring cheering news to all of those who are engaged in this great industry.—*J. B. Covington, Vice-Pres. and Gen. Mgr., Wade Mfg. Co., Wadesboro, N. C.*

* * *

I note the Textile Bulletin will celebrate its 25th anniversary on March 5th. I have been a subscriber to the Bulletin for about 20 years and can truthfully say I enjoy reading it more than any publication that comes to my office. I usually read it from cover to cover but I especially enjoy reading your editorials.

I have found you to be fearless but sincere and fair in dealing with the various problems that have confronted the textile industry as well as labor during the past few years. I feel sure also that you are a real friend to the laboring man and have been absolutely fair in your discussion of the various questions which have come up and at the same time you have also been fair towards the industry.

I want to congratulate you on the success of the Textile Bulletin and it is my wish that you may live to celebrate your golden anniversary.

I would like to see the day come when the Bulletin will be read by every man and woman employed in the textile industry.—*R. W. Jennings, Supt., West Point Mfg. Co., West Point, Ga.*

* * *

I wish to extend my congratulations on your splendid publication reaching its 25th year of most useful work in the interest of textile mills, and the workmen in these mills.

The Bulletin has always been zealous in upholding movements that promoted the best interests of the mill and its workers and I, for one, feel proud that we have a man of David Clark's calibre at the head of such a valuable publication.—*R. P. Sweeny, Supt., Exposition Cotton Mills, Atlanta, Ga.*

* * *

I wish to congratulate you upon your celebration of your 25th anniversary.

I was one among the first subscribers to the Textile Bulletin, and have enjoyed its weekly visit to my desk for the entire 25 years. In my judgment, it has always contained wholesome, helpful, instructive and valuable information pertaining to textile industry.

Among my textile magazines the Bulletin rates highest. —*M. P. Leister, Supt., Victor-Monaghan Co., Walhalla Plant, Walhalla, S. C.*

* * *

I learn that you are soon to celebrate the 25th anniversary of the founding of your Bulletin, and I feel that it is my duty, as well as a great pleasure, to gratefully acknowledge the obligations I, as a cotton manufacturer, owe you and your excellent paper for the many services you have rendered the industry throughout these years. The courage and energy you have shown in tackling many radicals who were attacking our industry both North and South, has been admirable, and I feel that all of us are greatly indebted to you.

Permit me to say, too, that there is no paper or journal coming to our office which is more eagerly received and read than yours. Invariably I turn first to the editorial page, which is always refreshing, and contains so much "horse sense."

May you and the Bulletin live long and prosper.—*H. B. Jennings, Pres. Mansfield Mills, Inc., Jennings Cotton Mills, Inc., Lumberton, N. C.*

* * *

For 25 years you have been the watch-dog of the Southern textile industry, constantly championing its progressive efforts and staunchly defending its character when falsely attacked. Indeed, both employers and employees have much to thank you for. May you and "Dave" Clark be spared many more birthdays.—*J. C. Edwards, Gen. Supt., Martha Mills, Thomaston, Ga.*

* * *

I believe I have been a reader and subscriber of the Textile Bulletin since the first edition and consider it the best textile magazine of today.

I have watched its growth with interest and especially the many fights that have been put up by Mr. Clark, the editor, in behalf of the textile industry.

Here's wishing both the Editor and the Bulletin many more happy and profitable anniversaries.—*O. L. Wagstaff, Supt., Anchor Mills Co., Huntersville, N. C.*

* * *

Upon the Silver Anniversary of the Textile Bulletin I congratulate you upon the excellent service you have rendered the textile industry of the South during this time.

I regard your magazine as one of the outstanding in its field and believe it has done much to promote the progress of our industry. — *George H. Lanier, Pres., West Point Mfg. Co., West Point, Ga.*

* * *

I wish to congratulate you upon the 25th anniversary of your valuable publication, and to express the hope that the Textile Bulletin may continue to serve the textile industry for many years to come.

We feel that through your editorial columns you have made a distinct contribution to the welfare of the textile industry, both from the standpoint of the operative as well as the stockholder.

Wishing you much success in the future.—*George M. Wright, Pres., Republic Cotton Mills, Great Falls, S. C.*

* * *

Heartiest congratulation to you and your valued paper, the Textile Bulletin, for the very great service that your personality through the medium of your paper has rendered the textile industry during the past quarter of a century.

I sincerely trust that this influence may be spared the industry for many years to come. The good influence of the editorial pages during the past years would be hard to estimate.—*George F. Brietz, Supt. Selma Cotton Mills, Selma, N. C.*

An Engineer Notes Textile Progress

By H. H. Iler

Chief Engineer, Union Bleachery

LOOKING back over the period covered by the quarter of century the TEXTILE BULLETIN has served the industry one cannot but be impressed with the changed picture now presented in comparison with the order in those other days. Processing machinery has undergone changes that have made for improvement unbelievable in the other days, while methods of organization and operation have kept pace with the advanced thinking of ambitious personnel, with the result that today the modern cotton mill has few characteristics to identify it as the progeny of the plant of 25 years ago. True, a spinning frame still looks like the old spinning frame, and a loom still has the outward appearance of its ancestors of 25 years ago, but both have undergone improvements in many details that spell efficiency and greater production without loss of quality. The same is true of many other pieces of equipment throughout the mill, and this advancement of machinery development is still proceeding apace.

Many of us in the mechanical departments have seen the passing of the ponderous reciprocating steam engine, that marvel of shining steel and brass whose rythmic motions and gigantic proportions gave the observer the feeling that pygmy Man had indeed created a monster to do his work and bidding. Marvels of man's ingenuity and skill were these prime movers of the old days, and even though they served well and dependably then, they still had to yield their place in the sun to harnessed rivers, and the more efficient steam turbine, as conditions made production costs more and more important.

In our section of the country, the last 25 years has witnessed the development of a great network of power lines which bring the product of great waterwheel and steam turbine driven generators into our factories to turn the wheels of our machinery. This circumstance has perhaps had more to do with the rapid expansion of the industry than any other unless it is the availability of intelligent native workers. Combination of these with the fact that our section is blessed with healthful climate and environment, rapid development and expansion of the industry, became inevitable.

REPAIR METHODS

Repair methods are quite unlike those this writer learned in his early experience, and the machine shop now stands as something more than just a place where broken parts are "patched." Modern welding makes it simple to restore many valuable articles formerly discarded, and at costs that represent substantial economies in avoidance of operation interruptions, as well as in replacement purchases. Better utilization of machine tools made possible by improvements of the machine tool builders, and by a more studious and ambitious shop personnel, have enabled the mill shop to steadily enlarge the scope of its repair possibilities and to produce more and more of the replacement parts needed on the processing equipment in the mill. Organization in the shop was hardly given a thought 25 years ago, but at this stage it is being recognized that after all, costs of production are affected by shop methods and therefore it deserves development consideration also.

MODERN TOOLS

Many tools have been put into our hands to enable us to effect repairs and carry on maintenance. We now wonder how we ever got along without them. Light portable power drills, saws, threading machines, hammers, grinders, etc., contribute to faster operations that cut down delays and make costs of doing work lower. Development of steels has given us smaller and more durable shafts, stronger bolts, studs, nuts, screws, and also has provided us with steel parts that resist chemical attack and the inroads of weather. The alloying of other metals has provided parts that possess greater strength, even though in smaller mass, and that have characteristics permitting faster and cheaper machining and fabricaiton. Lubricants have been greatly improved, and chemistry has also given us more durable protective coating substances.

To sum up, it is inescapable that the industry has come quite a way out from the situation 25 years ago saw it in, and in that phase of it I have been privileged to most closely observe, there has been very substantial development and improvement that is still going on.

May I say in conclusion that the TEXTILE BULLETIN found favor with me right in the beginning of its life, and its pages have afforded me much interest and food for thought that have been most helpful. My name may not appear on the records as a subscriber for every one of the 25 years the BULLETIN has lived, but the fact remains that I have been a reader of it for all of that time, and one who feels a deep sense of appreciation of the part played by the BULLETIN in the advancement of the Textile Industry of the South.

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

I wish to extend my congratulations on the excellent service the Textile Bulletin has rendered the textile industry for the past quarter of a century.

Its editorial staff has been vigorous in championing the rights of the industry, and unrelenting in its war on Communism, radicalism, and racketeers that have caused untold trouble and loss alike to the employees and the employers.

I have read the Bulletin from its first edition, and have found it always on the side of right and justice, and a thorn in the side of the unscrupulous employers, and the ungrateful employees.

I wish for the Bulletin many happy and prosperous years, and a continued growth of its usefulness to the industry and the country.—*J. H. Hook, Corsicana Cotton Mills, Corsicana, Texas.*

* * *

It is my understanding that the Textile Bulletin will celebrate its 25th anniversary on March 5th. I want to at this time commend the Bulletin for the splendid service it has rendered the textile industry since its incipiency.

I have been a regular subscriber to the Textile Bulletin since the early days of its life and I can conscientiously say that I read every issue with the utmost interest and probably to a more consistent extent than any of the many other publications which come to me.

I feel that David Clark has done as much or more for both the employers and employees of the Southern textile industry than any other one individual. His efforts in behalf of the welfare of the textile industry have been untiring and in my humble opinion productive both from the standpoint of protection against its enemies and progressive development within the industry itself.

The past quarter of a century has brought many changes in the textile industry. A great deal of progress has been made and I personally consider Mr. David Clark and the Textile Bulletin one of the prime factors in that progress.

Here's hoping that Mr. Clark and the Textile Bulletin will continue to as effectively serve the textile industry in the next twenty-five years as they have in the past twenty-five.—*G. P. Stone, Supt., Revolution Cotton Mills, Greensboro, N. C.*

* * *

I have just learned with a great deal of satisfaction that you will soon celebrate your 25th anniversary. I want to congratulate you upon not only being able to survive and fight not only your own battles but a great many for the Southern cotton mills, some of which, no doubt, would have been lost, had you not taken the fearless position that you did in leading the fight for the mills. I wish to commend you for your 25 years of service to the industry and trust that you continue your good work for many years to come.—*P. B. Parks, Mgr., Erwin Mills Nos. 1, 4, and 6, Durham, N. C.*

* * *

Time is a fast mover, for it is hard to realize that a quarter of a century has passed since I first began to subscribe to the Textile Bulletin. Except for a very few years during this period, I do not recall many times when the Bulletin was not promptly read when coming to my desk each week.

The Textile Bulletin organization and my good friend, David Clark, in particular, are to be congratulated and complimented with all the necessary adjectives on account of the substantial and progressive work they have been responsible for among the textile industry of the South.—*D. D. Towers, Anchor Duck Mills, Rome, Ga.*

* * *

We have been a constant subscriber to your journal since you began publishing it nearly 25 years ago, and wish to congratulate you on the approach of your 25th anniversary.

We have found your journal an excellent one, and we receive no textile publication that we value more highly. You have done a constructive job for the Southern textile interests, and we wish you continued growth and prosperity.—*Jas. C. Self, Pres. and Treas., Greenwood Cotton Mill, Greenwood, S. C.*

* * *

I note that the Textile Bulletin will celebrate its 25th anniversary on March 5th.

It has been the writer's pleasure to have been a subscriber to this paper since its beginning and to have received one of the first issues. It is my opinion that the Textile Bulletin and its editor, Mr. David Clark, have been a great asset to the Southern mills and I wish for them both many more years of prosperity and usefulness.—*J. W. McElhannon, Gen. Mgr., Waverly Mills, Inc., Laurinburg, N. C.*

* * *

In celebrating the 25th anniversary of the Textile Bulletin on March 5th, 1936, I am prompted to write you and congratulate you on your anniversary.

For twenty-five years the Bulletin has occupied an enviable place in the textile industry. With David Clark as its guiding genius it has served, is serving and will continue to serve the Southern cotton mill industry in a very peculiar way. His editorials have been clear and concise. He has never "straddled the fence" on any live issue.

Our staff here at the mill joins in extending to you and your staff best wishes for continued prosperity and may the next 25 years bring to you all the things you wish for yourself—*Walter Dillard, Jr., Mgr., New Braunfels Textile Mills, New Braunfels, Texas.*

* * *

I understand that the Textile Bulletin is approaching its 25th anniversary. As its editor during this quarter of a century Mr. Clark should feel proud of the respect in which it is held by mill executives, superintendents and operatives.

He should derive great satisfaction from its courageous stand for the rights of both employees and employers. He has never flinched, to my knowledge, in defending those rights. Moreover he has gone beyond the realm of textile problems and rendered his state and the South signal service in attacking the subtle influences of socialism to poison the minds of our young people and employees. It gives me great pleasure to congratulate him on the successful completion of 25 years of service, and to wish for him and the Textile Bulletin many more years of uninterrupted success.—*W. S. Nicholson, Treas., Excelsior Mills, Union, S. C.*

"Aunt Becky" Sees It Through

(*Continued from Page 74*)

majority finish high school and many go to college. The girls often take training and make successful nurses, teachers, welfare workers, stenographers and secretaries. Young men have been called to the ministry and to fill important positions in textile and other lines of work that none thought to aspire to years ago.

A good reputation of the mills in late years has caused the farms to be deserted in favor of mill life. Now that improved machinery calls for fewer operatives, mills are over-run with help. There is always several ready for every vacancy—and few vacancies occur.

There are too many mills, and occasionally Mr. Gorman stops one and throws a lot of people out of employment, forgetting that they have to eat. But that helps keep down over-production, even though under consumption (in rations) is experienced, all of which helps the fellow who prefers work to idleness.

One could go on and on, enumerating the goods things enjoyed by mill people today, who are glad to have work and to be self-supporting and self-respecting. People who are loyal, faithful and true are never without friends and credit.

But the greatest blessing that has been handed down to mill people is the eight-hour day with a living wage. And let no one forget that mill men voluntarily adopted that code, and most of them are still living up to it, all honor to them.

We don't know what the future will bring to us; invention and efficiency are hard to reckon with. The time may come when no help at all will be needed; one will just punch a button to get a thing done. Perhaps in that great day food will be served in pills, and we won't have to cook nor wash dishes!

Japan's Capacity May Be 400 Million Lbs. By June 30th

Japan's present productive capacity of rayon yarn is at present 300 million pounds a year, or about 90 million pounds more than that country produced last year, according to advices from abroad.

There continues to be a large scale expansion of production facilities dispite low prices, and there are reports that by the end of June of this year the installed productive capacity of the Japanese rayon industry will be 400 million pounds annually.

While this figure seems rather large and some in the local market are inclined to credit it as including staple fiber, the reports from abroad are to the effect that this potential productive capacity is entirely of filament rayon, a very high percentage of which is made by the viscose process.

If this increased production actually materializes, the production by Japan will outstrip the United States, because although there is expansion under way here it is not nearly of the size of that of Japan.

Twenty-Five Years Progress In Winding Machinery

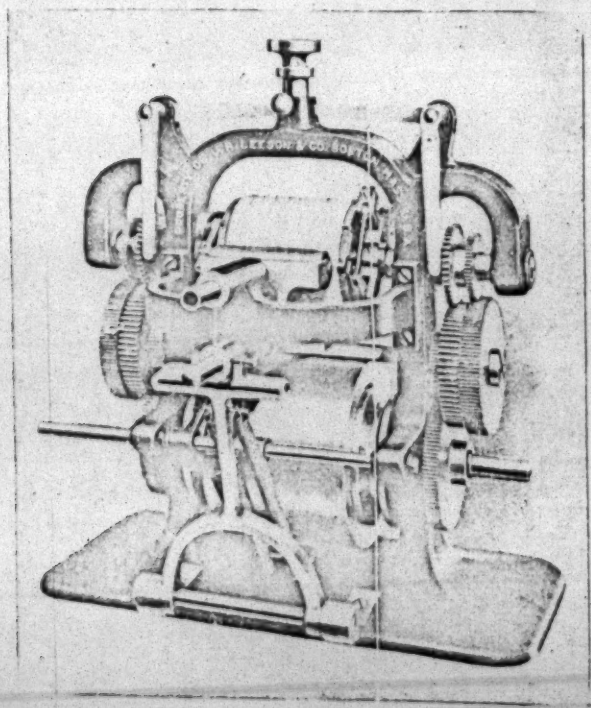
By I. E. Wynne, Charlotte, N. C.
Agent, Universal Winding Company

TWENTY-FIVE YEARS with winding machinery—well, that takes us back to about 1911, does it not? That's just one-quarter of a century if one desires to interpret it in more magnitudinous sounding terms. Anyway, it's quite a while, and many things could have happened in that span of years in the winding machinery field. In substance, they *have* happened—just as in the other fields of industry.

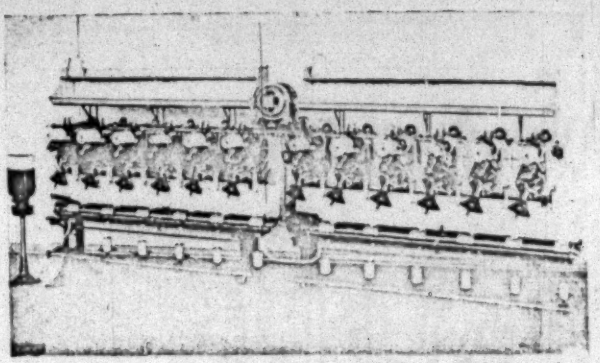
The writer of this article entered the winding machinery business just exactly twenty-five years ago, as a matter of fact, in the spring of 1911. While the entry was only in the capacity of a draftsman at the shops, such initial experience then did not produce any complete, immediate knowledge of the definite status of the winding phases involved in the industry at that time. Nevertheless a later perspective has produced the recognition of what existed not only in textile winding problems and conditions and winding machinery available for meeting them twenty-five years ago—but also that which has taken place since, both in winding problems and winding equipment for taking care of them. It has been a very interesting transition.

The First Winding Machine

From this standpoint of winding problems and winding equipment, both then and at present, I feel that it is quite in order to go back a little farther—yes, even back about twenty years before 1911—to about the year 1892—to tell a little story that really depicts when the solution to winding problems started, or at least when as an existing problem in a textile condition, *winding* was the solution. I do not mean to infer that even way back in the old days winding problems did not exist, for I suppose they did, but no one had done anything towards developing any real winding equipment for handling them.



The First Universal Winding Machine, now in Smithsonian Museum in Washington, D. C.



Rayon Cone Winder, with Emulsion Attachment

The story is about the founder of a company that has pioneered in this winding field, namely, Mr. Joseph R. Leeson, founder of the Universal Winding Company. Mr. Leeson had come to this country from England, and at that time represented an English concern selling linen and cotton thread yarns, principally to the shoe manufacturers in this country. Then it was the trade practice to put out the sale packages of this thread yarn in balls—quite similar to the way inexpensive hemp wrapping twine is put up in small ball package form today. This thread was relatively expensive then, and the balls were used as a supply on shoe manufacturing sewing machines. The thread delivered from this ball from the inside, and as a result, when the inside of the ball became quite hollow, the outside layers would collapse and become tangled, presenting an unworkable supply package of sewing thread, and thus consequently would be thrown away and wasted. This was an expensive waste.

To meet this wasteful condition, Mr. Leeson conceived the idea of winding this thread in self-sustained cylindrical package form that would permit the delivery of the thread from the outside of the package, and thus eliminate the collapsing of the package as prevailed with the balls. As a result of this idea, the first winding machine was designed and built. This first winding machine was

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VAT GUMS

Vat Gum W-696T contains a special thickener manufactured exclusively by Jacques Wolf. It contains the necessary alkalies and hydrosulphites.

This product runs more satisfactorily on the machine than the plain British gum pastes. Maintaining a fluid body in the printing machine, it does not coagulate or run short.

Printing Gum W-883—a powdered vat gum, is used extensively as a thickener for Rapidogens, Indigosols and Pharmasols. W-883 gives sharp lines and fine, smooth color values.

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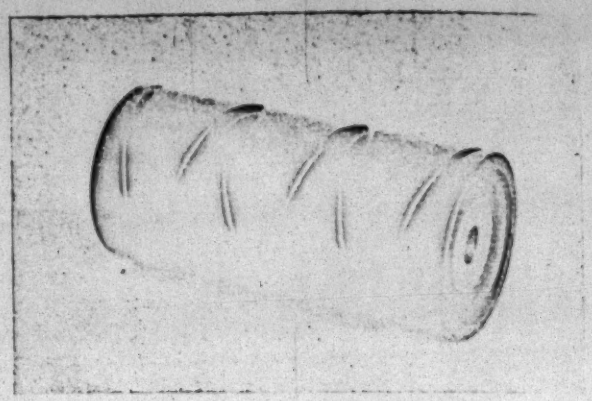
invented by a well-known New England inventor, Simon W. Wardwell, who later invented other types of winding equipment and many other winding devices and appliances. Mr. Wardwell later also invented several types of braiding machinery. It is very interesting to know that this first winding machine is now in the Smithsonian Institute in Washington, D. C., in the same building where hangs from the high ceiling, Lindbergh's plane in which he made his epochal transatlantic flight. As a result of this initial invention, the Universal Winding Company was founded, and the commercial application of winding machinery started and advanced in meeting the trade's requirements, with numerous improvements in the meantime, up to the period wherein we approach the year 1911—*twenty-five years ago.*

Since then the trade's requirements, brought about by definite winding problems in the textile industry, have been met by new inventions in winding equipment as well as with the introduction of new practices in the application and use of winding machinery. Only a general outline of them can be given in this article.

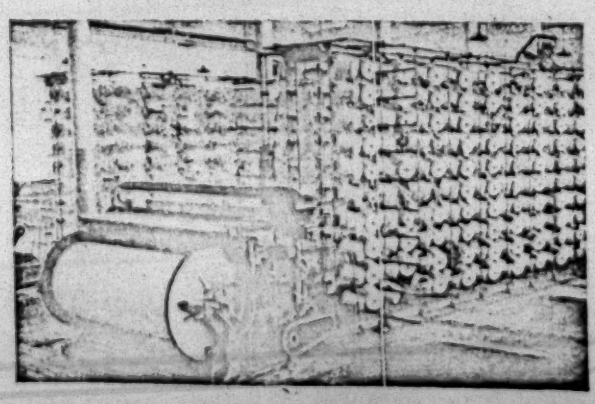
The Winding of Rayon

One of the major changes that has entered the textile industry in this quarter century period, has been the introduction and use of rayon, which has made very definite material strides, and as we all know, is now used in the textile industry in enormous quantities, and in many various and sundry forms. This use of rayon by the textile industry, as well as the actual manufacture of rayon yarns by the rayon manufacturers, has presented most definite and distinct winding problems that have been met by the development and design of winding machinery and appliances that have successfully satisfied the requirements. This has been a paramount condition, and a major responsibility has rested directly upon the winding machinery manufacturer. The winding machinery manufacturer has done a good job, and his efforts have been rewarded with successful use of his machinery and applications, both in the rayon manufacturer's and the textile manufacturer's plants.

The magnitude of the requisites in meeting this demand for equipment and appliances necessary in the manufacture and subsequent processing of rayon yarns, by the winding machinery manufacturer is a hard thing to express in words. The characteristics of different types of rayon yarns in itself has been a major problem. From a winding machinery standpoint, that which works satisfactorily with one type of rayon may not always do the same with another. The equipment that will wind a soft twist rayon yarn will not always handle a crepe yarn. This has required the winding machinery manufacturer to have designed many different types of attachments for application to winding machines for meeting these conditions. Such things as thread guides, traverse motions, emulsifying attachments, unrolling and overend winding attachments, slub catchers, not to speak of other seemingly unimportant sounding winding machine nomenclature, have all been details in equipment that have had to be designed to meet most accurate conditions. The responsibility for these developments has rested upon the winding machinery manufacturers' engineers, and it is gratifying to say that these engineers have received splendid co-operation from the rayon manufacturers and textile manufacturers in solving these problems.



The Rotary Traverse, used on Rotary Traverse Winder



High Speed Warper, with Magazine Cone Creel

Rayon on Cones for Warps

In weaving mills manufacturing rayon fabrics involving all rayon warps, it was the practice up until relatively only a few years ago, to prepare these warps via the process of buying the rayon yarns in skeins, then putting it onto spools, and from the spools putting it into warp form on beams, preliminary to slashing. Today it is the general practice in the preparation of standard twist rayon yarn warps (which comprise a major portion of the production involved) to use rayon magazine cone creels in back of warpers. This permits higher speeds for the warpers (as high as 300 yards per minute); continuous operation of the warpers, as with the magazine cone creel the creeling is done while the warper is in operation; longer warps, as the magazining of the two cones together in the magazine cone creel establishes an endless warp strand which did not exist when a single spool having a limited yardage was used; material reduction if not practically entire elimination of waste; better quality warps; and greater productions as well as other advantages. The beauty of this system to the rayon weaver is that he is not involved in the winding of the rayon yarns, as this winding is done by the rayon manufacturer who puts out his sale package of rayon in cone form as done on a rayon cone winder.

Rayon on Cones for Filling

For rayon filling (standard twist) the rayon weaver likewise gets his rayon on cones for the supply for his

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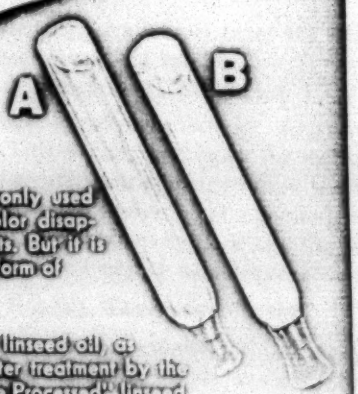
...the WHITE Paint that remains WHITE after others turn YELLOW!



VIAL A contains refined linseed oil commonly used in white oil paints. This yellow color disappears when the oil is mixed with white pigments. But if it is still there . . . will appear sooner or later in the form of "jaundice" upon your ceilings and walls.

VIAL B shows how the same highly refined linseed oil, as contained in vial "A," appears after treatment by the "Rice Process." It is almost pure white. This "Rice Processed" linseed oil is the principal reason why Barreled Sunlight is whiter at the start, remains white, year after year, spreads and hides better, flows more easily.

"WALL JAUNDICE"—word picture of what happens to ceilings and walls when the white paint covering them turns yellow! Their once bright surfaces take on a dingy, yellow tinge . . . light reflection dies, plant efficiency suffers.

There's only one *remedy* for jaundiced walls—another repainting. And there's only one permanent *cure*—painting with *Barreled Sunlight*.

Immune to "Wall Jaundice," Barreled Sunlight keeps its light-reflecting power, year after year. It's made with "Rice Processed" linseed oil—oil with the yellow color not "hidden" or "bleached"—but *taken out*. Your protection against yellowed plant ceilings and walls, this exclusive "Rice Process" makes possible the *Surety* shown at the right.

Send for free booklet detailing the outstanding features of Barreled Sunlight and listing prominent users. Write U. S. Gutta Percha Paint Co., 5-C Dudley Street, Providence, R. I. Branches or distributors in all principal cities. (For Pacific Coast, W. P. Fuller & Co.)

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We maintain that Interior Barreled Sunlight Gloss, the "Rice Process" White, will remain white longer than any oil-gloss paint or enamel, domestic or foreign, applied under the same normal service conditions and according to our specifications. If it does not do so, we will give, free, enough Barreled Sunlight to repaint the job.

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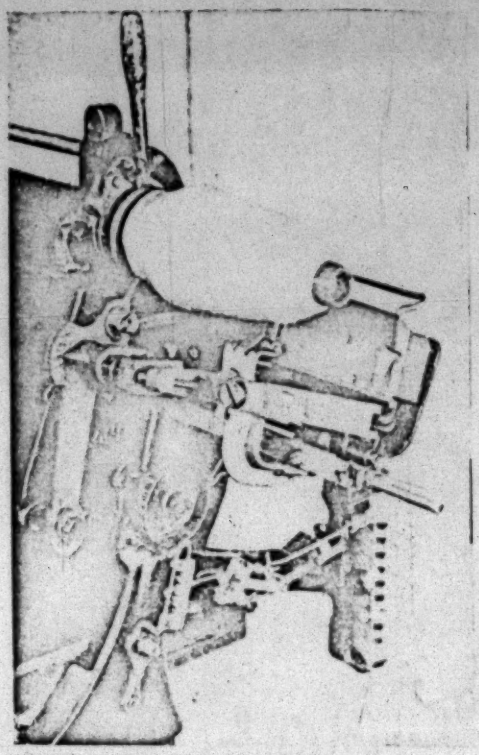
filling winders, thereby very materially reducing his filling cost. Within the past few years this practice has become general, thereby superseding the previous process of standard twist rayon filling preparation from both the spool form and direct skein form on filling winders in weaving mills.

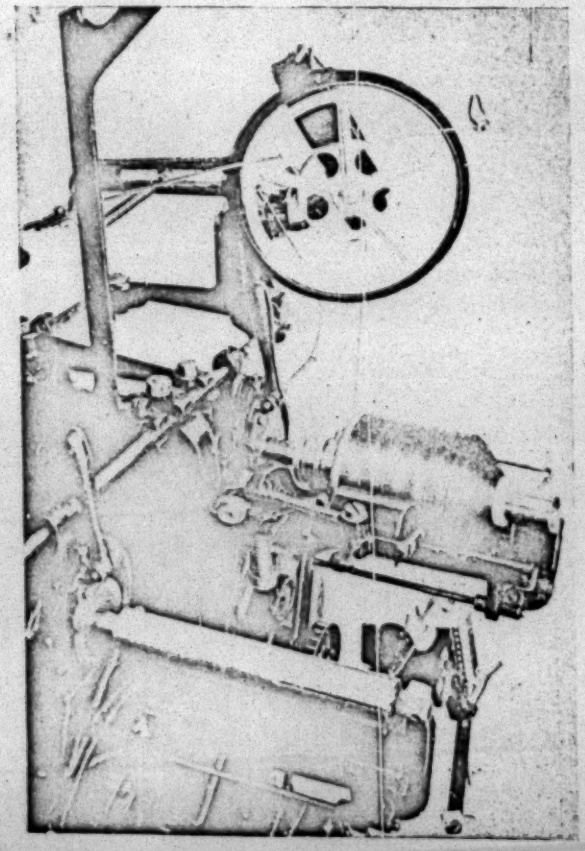
The use of rayon on cones as a supply for twisters in making rayon crepe yarns is making headway today. This involves certain treatments to the yarn being done by the rayon manufacturer.

High Speed Winding and Warping

Twenty-five years ago the use of high speed winding and high speed warpers in cotton yarn warp preparation was unheard of. About fifteen years ago the first high speed cone winder was designed and built, and at the same time the first high speed section beam warper was built, and likewise the magazine type of cone creel to function with it. As a matter of fact, the magazine type of cone creel preceded the high speed warper in origin, for it is the principle of the stationary cone supply in the cone creel in making possible overend delivery of the yarn from it, that makes it possible to operate a section beam warper at high speed. The inertia condition of the rotating spool in the old type spool creel naturally presented a limitation to warper speed, which was eliminated by the overend delivery of the yarn from a stationary cone in the cone creel, and thus opened the way for high speed warper possibilities. Today one high speed warper with magazine cone creel takes the place of approximately eight low speed warpers.



Pineapple Cone Attachment, on No. 50 Universal Winder



Bobbin Spool Attachment and Thread Meter, on No. 50 Universal Winders

High Speed Winders

The first high speed cone winder was brought out about 1921. This winder had cams for controlling the traversing of the yarn quite similar to those used in earlier models of winding machines, and operated about 500 yards per minute, this being more or less the peak speed obtainable with reciprocating cam traverse mechanisms.

Rotary Traverse Winder

About six years ago an innovation in drum type winding machines was invented. This was a cone and tube winder embodying a rotary traverse and presented a winder to the textile industry having no reciprocating elements. As this winder has no cams, which theretofore had been the limiting factor regarding speed, this new type winder was capable of much higher speeds than ever before obtained. As a matter of fact, the limitation of winding speed obtainable is only the ability of the yarn being wound to deliver satisfactorily from the warp spinning supply bobbin. A great many of these rotary traverse winders are now in operation and the operating speed at which they are running is from 700 to 800 yards per minute. When one compares this to the operating speed of from 150 to 200 yards per minute that prevailed twenty-five years ago, and up until fifteen years ago, or for that matter even today with the old type of drum winders, it will leave no question as to the progress made in winding and winding machinery during the quarter century period about which we are talking. Furthermore, even though greater speed and resultant production per spindle is obtained with the rotary traverse winder, due to its unique freedom from reciprocating parts, the maintenance cost is reduced to a negligible

(*Continued on Page 118*)

Twenty-Five Years of Machinery Improvement

By Wm. McL. Fraser

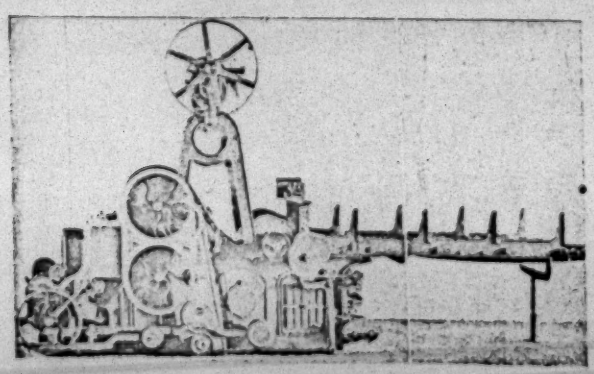
H. & B. American Machine Company

THE Twenty-fifth Anniversary of the Textile Bulletin marks a period of progress and development unequaled during any similar period in history. There is no doubt that this tremendous progress is somewhat the reason for our present dilemma; so much technical and scientific development achieved in such a short period of time is bound to upset our economic status, for we are not able to assimilate ourselves with the new conditions required by these developments. It is therefore to some extent necessary that some sort of upheaval take place in order to obtain a general shaking down and leveling out of this progress and, so to speak, give us a breathing spell to sort out the complications brought about.

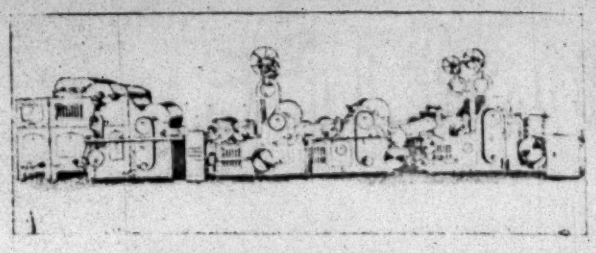
During this period the *Textile Bulletin* has kept pace with the progress and advance made in the manufacture of cotton goods. Developments in this line have affected every process in the mill from opening through to the finished goods. H & B American Machine Company have made developments in their whole line of equipment which is also true of the other machine builders.

Opening Methods

The old method of opening cotton has been discarded and the modern bale breaker is now standard in all mills. With this machine came an improvement in the picking process which finally led to single process picking in place of two and three processes. Following this came a further development in the opening room, whereby all new types of cleaning machines were developed and a larger and more complete unit was placed in this room. Thus, cotton today is thoroughly opened and well mixed and blended by the use of feeders, bale breakers, opening and cleaning machines. This preparation enables the single process picker to produce a lap which, in years gone by, was almost impossible to obtain, and this evenness of laps is in some cases almost unbelievable. Not only have these improvements meant better work, but they have reduced the cost of manufacture from the standpoint of power, floor space, and labor.



Old Model H & B Finisher Picker



Modern H & B One Process Picker

Cards and Drawing Frames

The card has perhaps been changed less than any other machine now in the mill, although many refinements have been made in this machine. Automatic strippers have been provided and the work of the card has been simplified due to improved opening and picking. At present, while the details cannot be disclosed at this time, H & B American Machine Company are working on a very interesting development in this process.

The drawing frame has been improved in many ways from the standpoint of design. Electrical and mechancai stop motions have both been perfected and no drawing frame can be considered efficient and up-to-date without the automatic stop motion. Shafting is completely covered, making for cleanliness and elimination of hung-ups. Gearing has been distinctly improved; the tube gear has been redesigned and the radial throw is such as to fill the can to its maximum, at the same time so coiling the sliver as to be easily drawn out at the slubber.

Roving Machine More Refined

Roving machinery is today not much changed as to fundamental design but through refinements and quality of work is much superior to that of the older style frames. The latest developments in this process are high draft and super draft machines. The high draft roving frame allows an increase of draft up to 10.00, while the super draft machine has given some very good results with a draft of over 30.00. Most of this work at present is in the experimental stage and various mills are working in conjunction with machine builders in trying out a newer development along this line. A very even roving can be produced and from tests made it appears that yarn can be made as strong and apparently more even from super draft roving than from the two, three and four-process roving. This is certainly very much different from the card room, as it has been known during the last twenty-

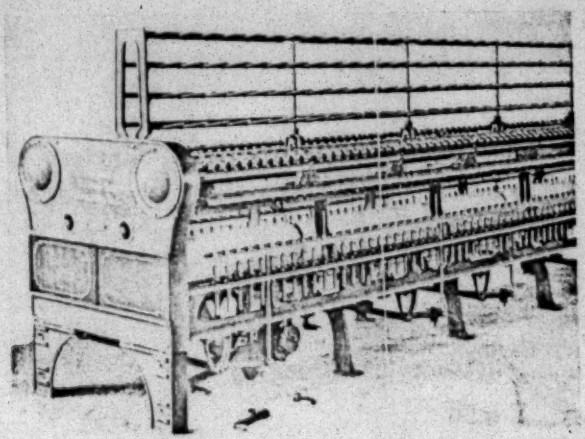
Twenty-five Years of Machinery Improvement

(*Continued from Preceding Page*)

five years. Large savings can be made and when these processes are perfected an improvement in the quality of the work should follow.

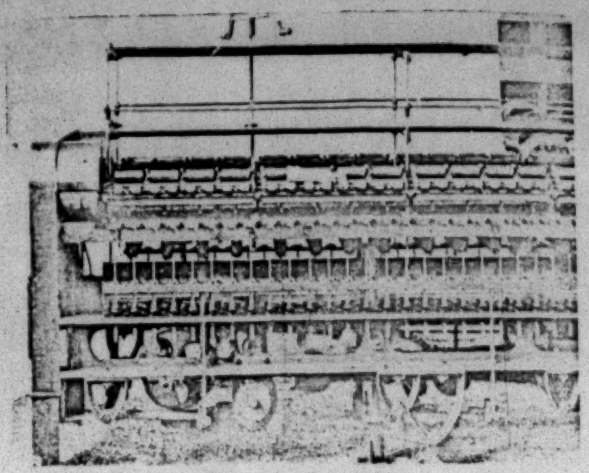
Spinning Frames and Twisters

Spinning frames and twisters have been redesigned throughout and provide for large packages both by larger rings and longer traverse. Higher speeds are obtained;



1914 Model H & B Twister

variable speed spinning has added also in this direction. Developments in new materials for bearings, and progress made in ball and roller bearings and their adptation to these machines and all textile machinery has made for more efficient equipment. The outstanding development in recent years in this department has been long draft spinning, which is today perfected with three systems in operation: Four roll, LeBlan Roth, and the Casablancas. These systems produce yarn practically equal in every respect and it largely becomes a matter of choice with the mill man as to which one he cares to adopt, whether or not he prefers one with belts or one without belts. This improvement has brought with it the overhead

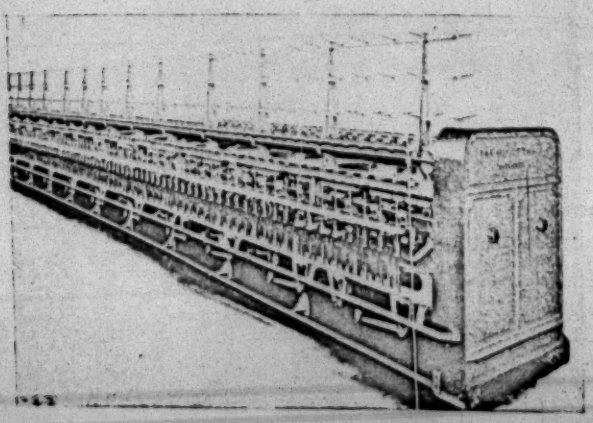


Old Model H & B Spinning Frame

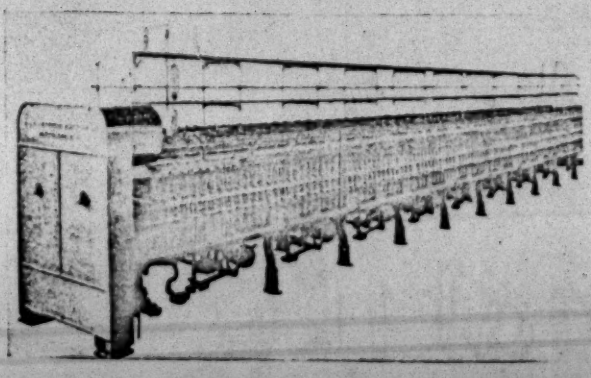
cleaner which has simplified the work in the spinning room. Long draft has given to the trade stronger and more even yarn at a reduced cost.

In the past twenty-five years spindles have been tremendously improved, eliminating oil leakages and providing for higher speeds and longer life. In recent years rings for both spinning and twisting frames have been improved due to progress made in metallurgy and manufacturing methods. These rings provide longer traveler life, higher speeds, and result in better work. There are so many things that have been developed in the last twenty-five years it is almost impossible to touch upon them all in a short article of this nature. Box head spinning and twisting frames, tape drive, individual motor drive, automatic looms, high speed winding, etc., are just a few more developments which have not been touched upon at this time.

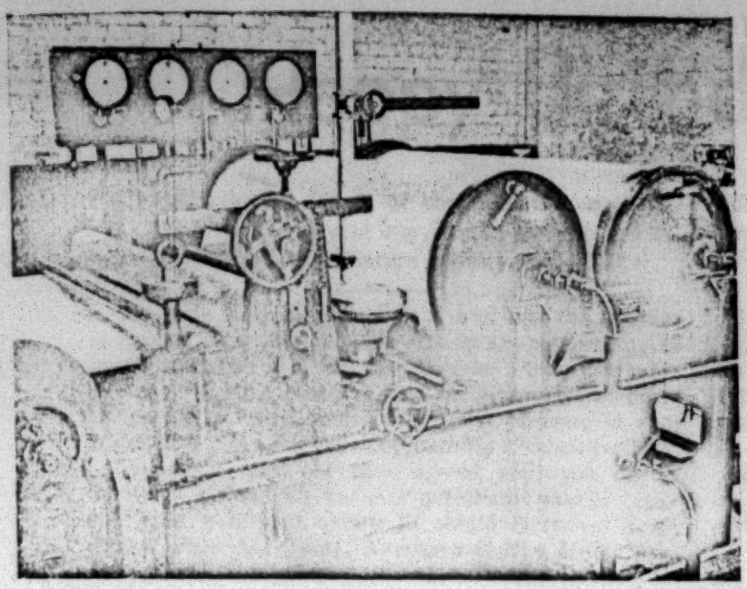
When we stop to realize all of the progress that has been made and the small amount of replacements the mills have made in the last ten or fifteen years, it certainly is most vital that every cotton manufacturer should realize the necessity of modernizing his mill not only for the economies which he can figure on before the installation but unseen economies are such as to result in tremendous savings in manufacturing cost. The mill manager must realize these things which are not only true in our own industry, but in every industrial line.



New Model H & B Twister



New Model H & B Spinning Frame



FOXBORO ENGINEERED SLASHER CONTROL

Where can YOU *save?*

—In Your Slashing?

The Foxboro Slasher Control System is *completely engineered:* It controls the temperature of the size in size cooker and storage, the level and temperature in the size box, and the temperature of drying cylinders, to give you these advantages:

Yarn of greater tensile strength
Increased weaving efficiency
More uniform dyeing
Size easily scoured out
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A Foxboro Time Cycle Controller is the key unit in the specially designed skein control. It keeps the dye going over the skeins, then stops the entire operation at exactly the right time. A Temperature Controller maintains correct dyeing temperatures and a Liquid Level Gauge shows dye level. Result: fewer seconds, better matching of shades and a saving in steam costs.

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From Foxboro you can get the exact type of humidity instrument you require. Here is a complete line of Indicators, Recorders or Controllers with sensitive elements of special membranes, or wet-and-dry bulbs. Controllers may operate fans, dampers, motors and valves either by air or by electricity.

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THE COMPASS OF INDUSTRY

—COMPLETE—
TEXTILE MILL INSTRUMENTATION

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

Any man who has convictions and has the courage to express them is a valuable man in any community or in any industry. For the past 25 years David Clark has published a paper that has been of inestimable value to the textile industry, and I take great pleasure in congratulating you upon your approaching 25th anniversary.

Everybody may not have agreed with you on all questions, but nobody has ever questioned your sincerity and your wonderful ability to obtain facts. — *Z. F. Wright, Pres. and Treas., Newberry Cotton Mills, Newberry, S. C.*

* * *

I wish to congratulate you on your 25th anniversary on March 5th. I feel that the Bulletin has filled a very necessary place in the textile industry, a place that could not have been filled by any other textile paper. Your paper has always stood for what it believed to be right regardless of whether it was the most popular side or not. The Bulletin has always been fair with each and every question that has been discussed on its pages.

I have been a subscriber to the Bulletin so long, almost from its beginning, that it fills a very peculiar place in my office and each week I look forward with a great deal of anticipation for its arrival.

I hope for you even greater success in the future than you have had in the past.—*W. H. Gibson, Jr., Gen. Supt., Mansfield Mills, Inc., Lumberton, N. C.*

* * *

I have learned that you will publish on March 5, 1936, a Silver Anniversary number, commemorating the 25th birthday of the Textile Bulletin, and am sure this number will be read with a great deal of interest by Southern textile manufacturers.

May I, on your 25th anniversary, commend you on the service you have rendered the industry during this period through your fearless and constructive editorial policy, and the helpful articles you have published dealing with every phase of textile manufacturing.

It has been my observation that your journal is received and read with an exceptional degree of interest, not only by the men who own the mills, but also by the executives who operate them. In furnishing up-to-the-minute news, technical articles and complete reports of association meetings, I feel that Textile Bulletin fills a very important place in the industry here in the South.

Congratulations on reaching this quarter-century milestone and best wishes for your continued success.—*B. B. Gossett, Pres., Chadwick-Hoskins Co., Charlotte, N. C.*

* * *

As the 25th anniversary of the Textile Bulletin approaches, it is a pleasure to me to join your other friends in expressing to you not only our best wishes for the future but also some appreciation for what you and your paper have meant to our industry during all of these years gone by. There is not a man who reads your paper but what appreciates David Clark's independence in thinking; nobody wants or expects approval of all his positions, but certainly he is glad to have the endorsement for honesty of opinion from his friends. We like for a man to have an opinion and we like to see him willing to express it and that is the kind of a man we think he is and the kind of paper we think he runs.—*Donald Comer, Pres., Cowikee Mills, Eufaula, Ala.*

* * *

I noticed that the Textile Bulletin will celebrate its 25th anniversary on March 5th.

I would like to say that I've been a constant subscriber and reader of this excellent magazine since that date. I have been pleased to read your magazine and have been very much benefited by it.

Allow me to congratulate you on this anniversary and long may this magazine live.—*L. G. Kelley, Supt., Poinsett Mills, Greenville, S. C.*

* * *

I note that the Textile Bulletin, on March 5th, will observe its 25th anniversary.

I have not had the pleasure of reading your publication quite that long but for the past 18 years I know it has been a great help to the mills in this particular section. I feel that the Bulletin is the one textile trade paper that reaches the furtherest throughout the plant in that it creates a better feeling between our operatives and the management.

We hope that you will have many more successful years.—*T. P. Morris, Supt., Textiles, Inc., Gastonia, N. C.*

* * *

Having learned that you have reached the silver anniversary of your publication, I am writing to congratulate Mr. Clark on its steady growth and to wish you more power.

For years we have been glad to support him by seeing to it that every keyman of our organization gets your paper. They and I look forward to its arrival every Friday and there is great complaint if for any reason it should fail to come.—*Jno. W. Arrington, Pres., Union Bleachery, Greenville, S. C.*

* * *

I congratulate the Textile Bulletin on its 25th anniversary.

It is my belief that the service it has rendered to the Southern textile industry during these years has been invaluable and that its high attainment in the field is well deserved.—*F. B. Williams, Agent, West Point Mfg. Co., West Point, Ga.*

* * *

I await with anticipated interest your 25th anniversary number and hasten to congratulate you in advance.

Having been a subscriber and reader of the Bulletin for the entire 25 years I have found it very beneficial to me in my work. Its editorials are an inspiration to all pure blooded Americans these days of "Deals and isms."—*The Borden Mfg. Co., C. M. Black, Supt., Goldsboro, N. C.*

* * *

One of the most welcome visitors to our office is the Textile Bulletin. I have come to depend upon it for suggestions, forecasts and trends in manufacturing. You are to be commended upon the fine technique used in the presentation of new ideas as well as upon the mechanical excellence of your publication.—*A. S. Paine, Mgr., Mollohon Mfg. Co., Newberry, S. C.*

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

We note with interest that you are expecting to celebrate the 25th anniversary of the Textile Bulletin and we would like to take this opportunity to, in our humble way, congratulate you upon this happy occasion and wish for you a continued success throughout the coming years. We feel that Mr. Clark, through the Textile Bulletin, have been of wonderful service to the mills and it took a man of fearless courage such as you have to wage the battles for the mills as you have so often done and are always willing to do.

The Textile Bulletin has not only been of great value to the mills on account of the stands in legislative and other matters that you have taken, but the textile industry has benefitted greatly from the advertisements that the machinery people have with you.

Again we extend to you our sincerest congratulations and wish for you many more years of usefulness.—*Lyman A. Hamrick, Supt., Hamrick Mills, Gaffney, S. C.*

* * *

Please accept my congratulations to the Textile Bulletin's 25th anniversary of service to the textile industry.

Your fearlessness in stating facts when discussing any subject is very commendable and I join with others in wishing for you many happy returns of the day.—*C. L. Still, Supt., Springs Cotton Mills, Fort Mill, S. C.*

* * *

I note that March 5th will be the 25th anniversary of your valuable paper. Please allow me to congratulate Mr. Clark and the Bulletin for the splendid work it has done in the past and may it continue to stand for the right in the future. As your paper passes the milestone that indicates a quarter of a century I feel sure its friends have multiplied may times. What more can I wish than a continuance of friends and a fair proportion of success for your good paper.—*L. V. Andrews, Supt. Martinsville Cotton Mill Co., Inc., Martinsville, Va.*

* * *

It is gratifying to the subscribers and friends of the Textile Bulletin, especially those of the textile industry, to know that you will celebrate your 25th (silver) anniversary on March 2, 1936.

The Bulletin is widely read throughout the South by many who are vitally interested in the welfare and the future of the textile industry.

Your Bulletin speaks frankly and fairly in the best interest of both employees and employers. Why should there be any misunderstanding between employers and employees when management is lending its best efforts to continue in business, looking to a brighter future for all who are interested in cotton milling?

The services rendered by the Bulletin during the past 25 years have proven of great value to all who are interested in the textile industry.—*T. M. Marchant, Pres., Victor Monaghan Co., Greenville, S. C.*

* * *

I have been a regular reader of Mr. David Clark's publications during the entire time that he has been interested in the several papers with which he has been connected. During that time I think Mr. Clark has rendered the textile industry in all of its aspects very fine and laudable services.

I certainly congratulate the Textile Bulletin for the high principles for which it has and now stands and for the fearlessness with which it is willing to advocate these just causes for the benefit of all. With all good wishes for Mr. Clark and his associates, and the Textile Bulletin.—*E. H. Bost, Mgr., Erwin Cotton Mills Nos. 2 and 3, Erwin, N. C.*

* * *

It is a pleasure to congratulate you on your 25th anniversary of service to the textile industry.

Your faithful, untiring and fearless attitude has been much appreciated by those of us who have done our best to build up and defend the industry against the unfair legislation and vicious criticisms which have been heaped upon us. May you live long and prosper.—*Emslie Nicholson, Treas., Monarch Mills, Union, S. C.*

* * *

I can remember very distinctly when Dave Clark was Associate Editor, as I remember, of the Textile Excelsior, which was run by Mr. Dowd in Charlotte before he started the Textile Bulletin.

I subscribed for the Textile Bulletin when it was first published, and have been a constant reader of the Textile Bulletin ever since.

I wish to take this opportunity on your 25th anniversary, to congratulate Dave Clark, his staff and the Textile Bulletin for the great and unselfish work they have done for the textile industry in the south for the past quarter of century—*P. A. Gwaltney, Gen. Supt., Marlboro Mills, McColl, S. C.*

* * *

I am very much pleased to note that the Textile Bulletin will celebrate its 25th anniversary on March 5, 1936.

During this period many articles of vital interest to the textile situation and of real benefit to both employer and employee alike have been published through its columns.

I look forward with much interest weekly to receipt of the Bulletin and it is a pleasure to take time out and read same.

I wish for you continued success in the years to come. —*Geo. P. Haslam, Agent, Standard-Coosa-Thatcher Co., Chattanooga, Tenn.*

* * *

I note with much pleasure the announcement in your paper of the celebration of your 25th anniversary.

I have personally expressed to Mr. Clark my appreciation of the good work done by the Textile Bulletin and its value to the textile industry. These assurances I am glad to reiterate.

Our company has, I believe, carried an advertisement in your paper continuously since its first issue and we consider it valuable publicity.—*D. H. Wallace, Southern Agent, Keever Starch Co., Columbus, Ohio.*

* * *

I am writing to congratulate the Textile Bulletin for having David Clark as its Editor for 25 years. Your publication I have found is universally read, not only by the mill executives but also by their employees.

We admire the force of your editorials and hope that the Bulletin will have far more than 25 years more of your editorial supervision.—*Walter W. Gayle,*

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

March 2, 1936, should be a gold letter day as your Textile Bulletin's Silver Anniversary.

The textile industry is due you a resounding note of thanks and appreciation for your fearless, outspoken and straightforward editorials on the timely topics that have confronted our industry. To act as a sounding board for an industry without receiving criticism would be impossible, but regardless of this your magazine has continued to grow and increase its circulation, which is proof enough of its merit. The adage runs "The first 25 years are the hardest" and with that in mind, allow me as one of your subscribers to wish you much success in the years to come.—*W. S. Montgomery, Treas., Spartan Mills, Spartanburg, S. C.*

* * *

I understand the Textile Bulletin will celebrate its 25th anniversary March 5. It certainly does not seem that long, does it?

I read the first copy of this paper with a great deal of pleasure and interest and I do not remember that I have missed seeing it a week since then, and the last copy I have received has been just as interesting and has been read with just as much pleasure as the first. I consider it unquestionably the best paper of its kind published, or at least the best I get hold of.

Allow me to congratulate you on your 25th anniversary and extend my best wishes for your future prosperity and hope that we will both be able to celebrate the 50th anniversary or "Golden wedding." — *J. P. Hamrick, Supt., Pacific Mills, Columbia, S. C.*

* * *

The publication of the 25th anniversary number of your journal prompts the question:

When does an organization become an institution? The answer may be indefinite, but many will agree that David Clark and the Textile Bulletin may be considered a joint, constructive institution whose services to the textile industry have been, and continue to be, of inestimable value.

We congratulate you on your 25th anniversary and wish for you and your distinguished editor an indefinite lease on the future for continued usefulness.—*Chas. H. Stone, Pres., Chas. H. Stone, Inc., Charlotte, N. C.*

* * *

As you reach March 5th, the 25th anniversary of the Textile Bulletin and David Clark's 25th year as its Editor, we extend hearty congratulations, and in so doing, bear testimony to the fact that your journal and its editor have always fearlessly stood by their convictions on all subjects pertaining to the welfare of the Southern textile industry.

This leads to the popularity of the Bulletin which has been an important contributing force to the benefit and well-being of its many readers.

This silver anniversary is an occasion worthy of note, and one in which thousands will join, and not only in congratulations, but in hope and best wishes for continued success.

May your journal and its fearless editor continue unabated, their contribution to the industry, of wholesome advice, sound thinking, and general news of interest to the textile industry. — *Edwin Howard, Southern Sales Manager of Veeder-Root, Inc., Greenville, S. C.*

* * *

It is my wish to offer you sincerest congratulations upon the 25th anniversary of the Textile Bulletin, a paper with an editor who has the courage to state and uphold his true convictions on any subject.

Your service to the textile industry through its various columns during all these years and at present has been and is indeed invaluable to the business. Human interest from your "Personal News" and "Mill News Items" both provide a source of keeping up with current events in our line, to say nothing of the many other priceless and helpful columns found therein. In fact, to my mind, a wealth of information and help is to be had in each successive issue.

Again I congratulate you, and wish you many more happy anniversaries.—*George W. Robertson, Vice-Pres. and Gen. Supt., Riverside and Dan River Cotton Mills, Danville, Va.*

* * *

I beg to advise that the Textile Bulletin is the one and only cotton textile journal with the exception of the Daily News Record that I read with care each week.

You are surely to be congratulated upon your courageous and outstanding editorials, as well as upon current news and outstanding articles of worthwhile interest and helpfulness to practical textile manufacturing executives.

We wish you every possible continued success that you so well deserve.—*J. M. Gamewell, Treas., Erlanger Cotton Mills, Lexington, N. C.*

* * *

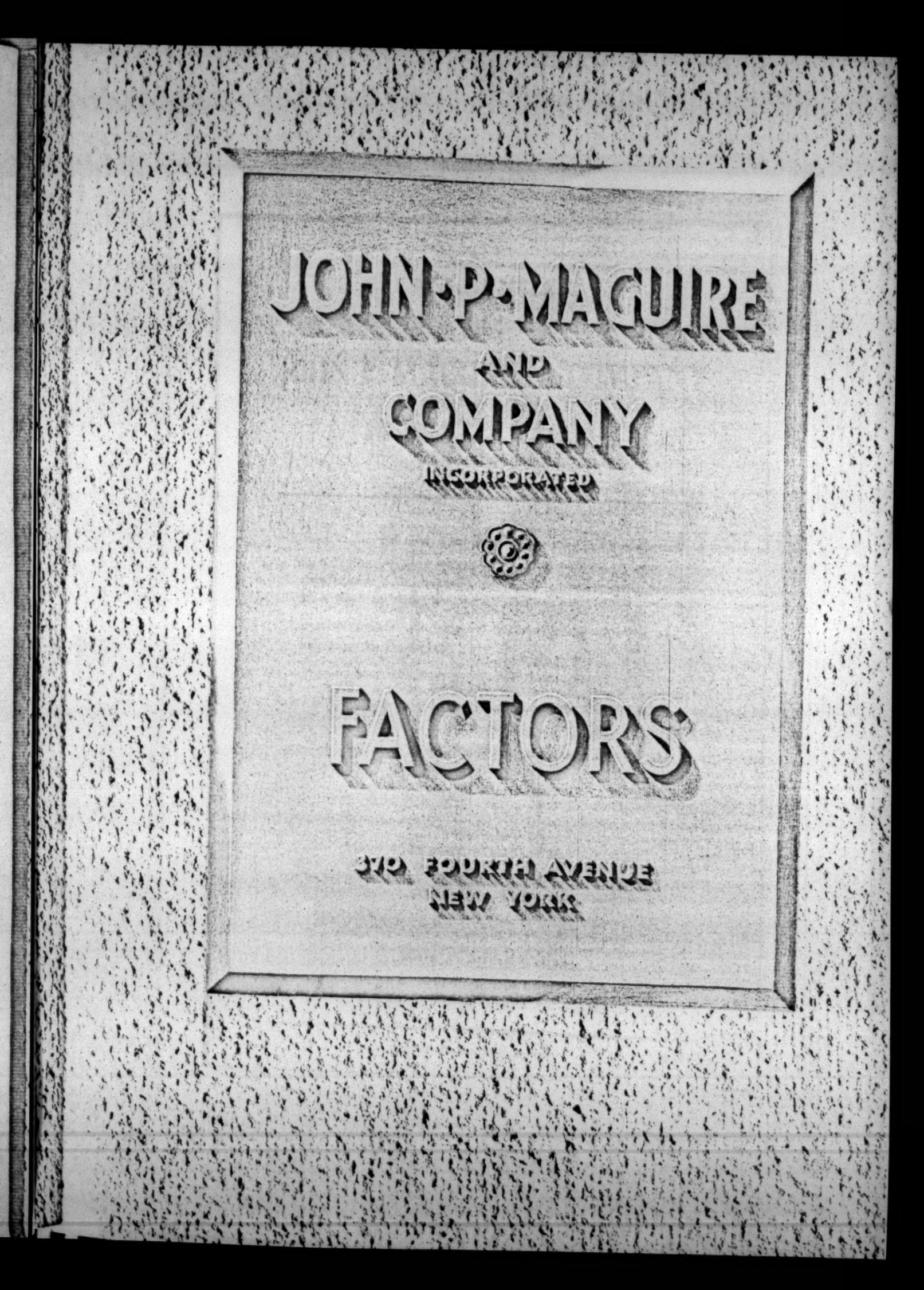
We consider it a rare privilege to be able to extend to you our congratulations and good feelings on your silver anniversary in founding the Textile Bulletin.

In our wide association in the textile industry we know that your courageousness in fighting the evils and difficulties which have been creeping into the cotton industry of the South for the past few years is greatly appreciated by a large majority of men who are sorely tried in these troublesome times. Your editorial comment is always based on sound facts which those engaging in dispicable policies of ruination cannot dispute.

May you be spared for many years to come in order that you may continue your most valuable service. - *Philip C. Wentworth, Treas., National Ring Traveler Co., Providence, R. I.*

* * *

I note that on March 5, 1936, you will celebrate the 25th anniversary of the Textile Bulletin. I have been a subscriber to the paper since its first issue and have read every copy of same from then up to date. I am convinced that the Textile Bulletin has been a real upbuilding force of the cotton-textile industry in the South. The editorial policy is fearless and I recall no statement that has ever been made on the editorial page which the Editor could not substantiate. The technical features have been uniformly of high order, the news items are interesting and enlightening, and the advertising has been helpful to buyers. I sincerely hope that many more years of useful service will be vouchsafed to the magazine and to the editor and all its staff.—*Thos. H. Webb, Pres., Locke Cotton Mills Co., Concord, N. C.*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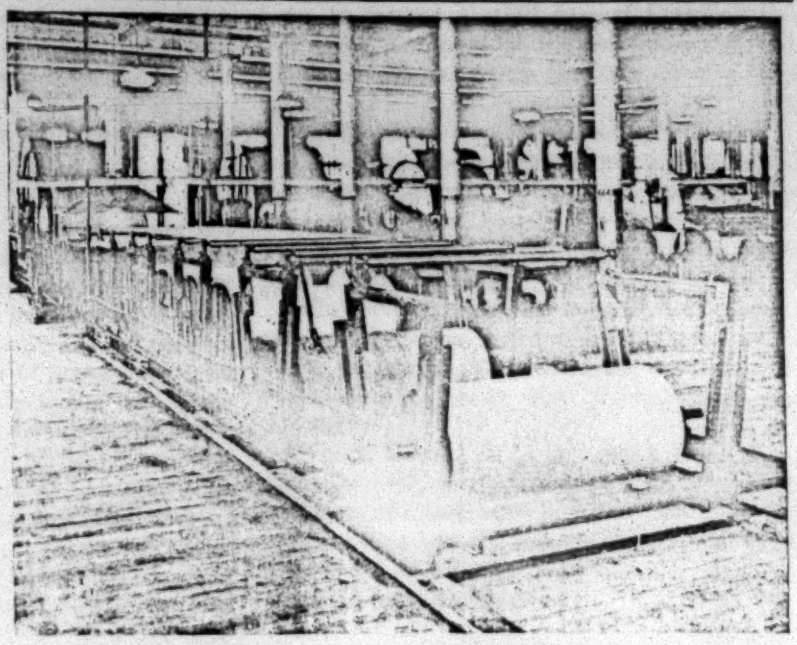
COCKER BEAM DELIVERY
SLASHER CREEL

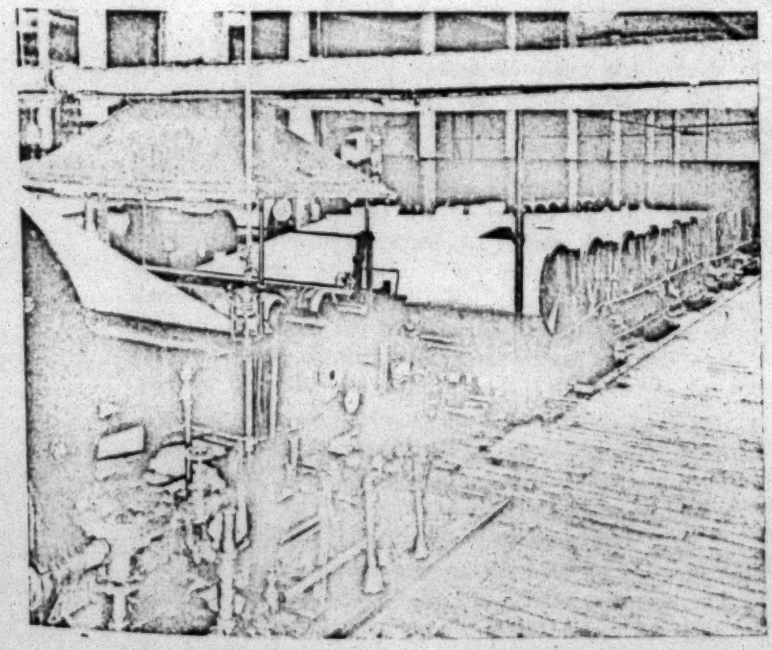
PATENT APPLIED FOR

COCKER BEAM DELIVERY SLASHER CREEL

PRINCIPLE: Yarn from Section Beams is DELIVERED FREE OF TENSION to Quetch Rolls of Size Box, instead of the old Method of *Pulling* the yarn from heavy Section Beams with the "Braking" effect applied by means of the Rope Friction to prevent these Beams from turning, and which in turn causes an unnecessary stretching and weakening of the yarn for weaving.

DESCRIPTION: Section Beams are carried by DRIVING CYLINDERS, two beams for each Cylinder, with all of these Cylinders covered for traction and finished the same diameter. All Cylinders are coupled together with a connecting drive which receives its drive through an Automatically Controlled Variable Speed Transmission Drive to the Quetch Rolls, for fixing, controlling, and uniformly maintaining a desired or required degree of yarn tension between the Section Beams and the Size Box.





PROVEN ADVANTAGES

SLASHER OPERATING SPEEDS—regardless of weight, length, and yarn counts of Warp on the Section Beams can be set to the limit of the Drying capacity of the Slasher.

YARN TENSION is reduced to a minimum, and in combination with its Automatic Tension Control Feature, the Cocker Beam Delivery Slasher Creel permits of adjustment for tension of any desired or required amount, and will maintain this fixed amount uniformly throughout the running of a set of Beams, regardless of Slasher Speed, counts of yarn, or weight of Section Beams. This is made possible by the design and principle involved in this Creel, which is that of DELIVERING the yarn from Section Beams to the Size Box, instead of PULLING it from the Section Beams.

GREAT EFFICIENCY, better weaving warps, less waste, higher operating speeds and better fabrics can be produced by use of this Creel and Automatic Tension Control.

COCKER MACHINE & FOUNDRY CO., GASTONIA, N. C.

Northern and Canadian Representatives: J. S. FALLOW & COMPANY, *New Bedford, Massachusetts*

BUILDERS OF

WARPERS---SLASHERS

FOR WARP PREPARATION OF

COTTON & SYNTHETIC YARNS

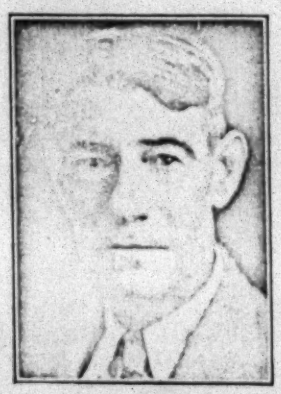
WRITE OR WIRE US FOR FURTHER PARTICULARS AND PRICES

Traveling Down The Years

As Told To D. H. Hill, Jr.

TRAVELING men who worked the Charlotte territory when they did all their traveling by train, cherish tender memories of the Seaboard train that started east every morning at 5 o'clock. It was a good train if you could catch it. The engineer, in accordance with an old Seaboard custom, insisted on ringing the bell and starting down the road at exactly the appointed time. The train was made up in Charlotte, got under way from a standing start and always left on the dot. If you were late for it, it was just too bad.

A group of "knights of the grip," as they were known in those good old days, who lived in the Dilworth section of Charlotte, cooked up a scheme for catching that train that was regarded as the last word in co-operative transportation for one and all. They jointly engaged the proprietor of a sea-going hack to circle around and about in the darkness of Dilworth every Monday morning, picking up passengers on convenient corners until all were present or accounted for. Then they voyaged grandly to the depot and thence off down the Seaboard to sell their wares.



LEWIS W. THOMASON

Well, once upon a time, about 25 years ago—which is the theme song of this issue—came a cold, rainy morning. The skipper of the hack, it being Monday morning and everything, was a little behind with his work. When the passengers reached the station, the train was trundling down the track. They stood in their tracks and cussed the train out of sight, that is all but one of them. He caught the train by the simple expedient of chasing it down, tossing his baggage aboard and climbing over the rear platform railing.

The traveler who did not miss the train was Lewis W. Thomason. He had something to sell to the mills down the road and only one way to get there. "If you can't see 'em, you can't sell 'em," he reasoned and outrunning a train was just a mere matter of salesmanship.

Lewis Thomason has been on the road for more than 30 years, having served with his present company, the New York & New Jersey Lubricant Co., for 27 years. He is one of the most successful and most highly regarded textile salesmen in the South. Less you think this is our story about Lewis Thomason let us hasten to assure you that this is Lewis Thomason's little story to contrast the difference between traveling conditions today and those when he started.

Worked in Mill

Before taking to the road with him, however, it is interesting to catch a glimpse of mill conditions as Mr. Thomason knew them before he started selling. In 1887, he started work at Clifton Manufacturing Company as a doffer and sweeper. He was paid all of 20 cents per day and only had to work 72 hours per week to earn it. Later he worked at Gaffney and Cherokee Falls and then spent five years at the old Oates Cotton Mill in Charlotte. He was a loom fixer then, earning $1.40 every day.

Mr. Thomason recalls hard work, hard times and the crude conditions prevailing in many mills as measured by today's standards. Electric lights were just beginning to replace kerosene lamps. The work ran bad. There was little knowledge of warp sizing, and less attempt to select suitable cotton.

"The president just went out and bought some cotton and we ran it through the mill the best we could. Considing everything, superintendents and overseers did a remarkable job under the circumstances," says Mr. Thomason.

"Trying to run a set of six looms was just like fighting fire. On cold, windy mornings, ends popped like firecrackers. We took buckets and sloshed water under the looms. This was the nearest thing to a humidifying system we had. Some mills ran live steam into the rooms to furnish humidity."

First Sales Experience

In 1899 Mr. Thomason went on the road as a card erector for Saco-Pettee Shops. Later he served five years with Whitin Machine Works in a similar capacity. Then he switched to selling card clothing for Joseph Sykes Bros., working under Dick Thomas, whom many mill men remember. When he made a sale, the job was only half done. He had to go back and clothe the card when the clothing was delivered. When the clothing job was finished, he shipped his tools home and started selling again. It was during this time that Mr. Thomason became interested in selling oil. He took on the New York & New Jersey account as a side line. In ten years he had built into a full time proposition.

Oil Was Oil

"In those days oil was oil. There were no established brands. Oil was just something to squirt on the machinery and in the superintendents' eyes, it all looked about alike. I was pushing a special oil for comb boxes and spent all my spare time writing letters to the mills and sending them samples," Mr. Thomason remembers.

"Traveling was tough in those days," he'll go on to tell you. "We would take a train to the town we were to work. Then we would hire a horse and buggy to make our calls, if they were widely scattered. If it were just a matter of a few miles between calls, he walked."

No one bothered to look ahead for a good place to spend the night, and the week-end had not been invented, he points out. He spent the night wherever darkness happened to catch him. Small towns offered poor hotels and boarding houses, but it was all in the day's work. The work was hard, the hours long and the pay low

(*Continued on Page 116*)

The Textile Chemical Industry Shows A Quarter Century of Steady Development

By Dr. E. W. Pierce, Ciba Company, Inc.

THE last twenty-five years may easily be rated as the greatest of all periods in the development of science and industry, as they mark the conquest of Nature's forces for the service of mankind. Earlier eras in the world's history have been notable for attainments in art, literature and things of a less practical nature, but the efforts of the last hundred years, which have accelerated in speed during the last twenty-five years, have been in the direction of wresting from the unknown the secrets which give man a greater mastery over matter.

The textile industry as a whole has benefited greatly by the progress of science, both by the advances in physics which have made possible the invention of new types of machinery and the advances in chemistry which have brought out new dyestuffs and new processes. The progress of the mechanical side of textile processing will doubtless be discussed by those capable of doing it full justice, so we will here review only what the chemical industry has done for the textile industry.

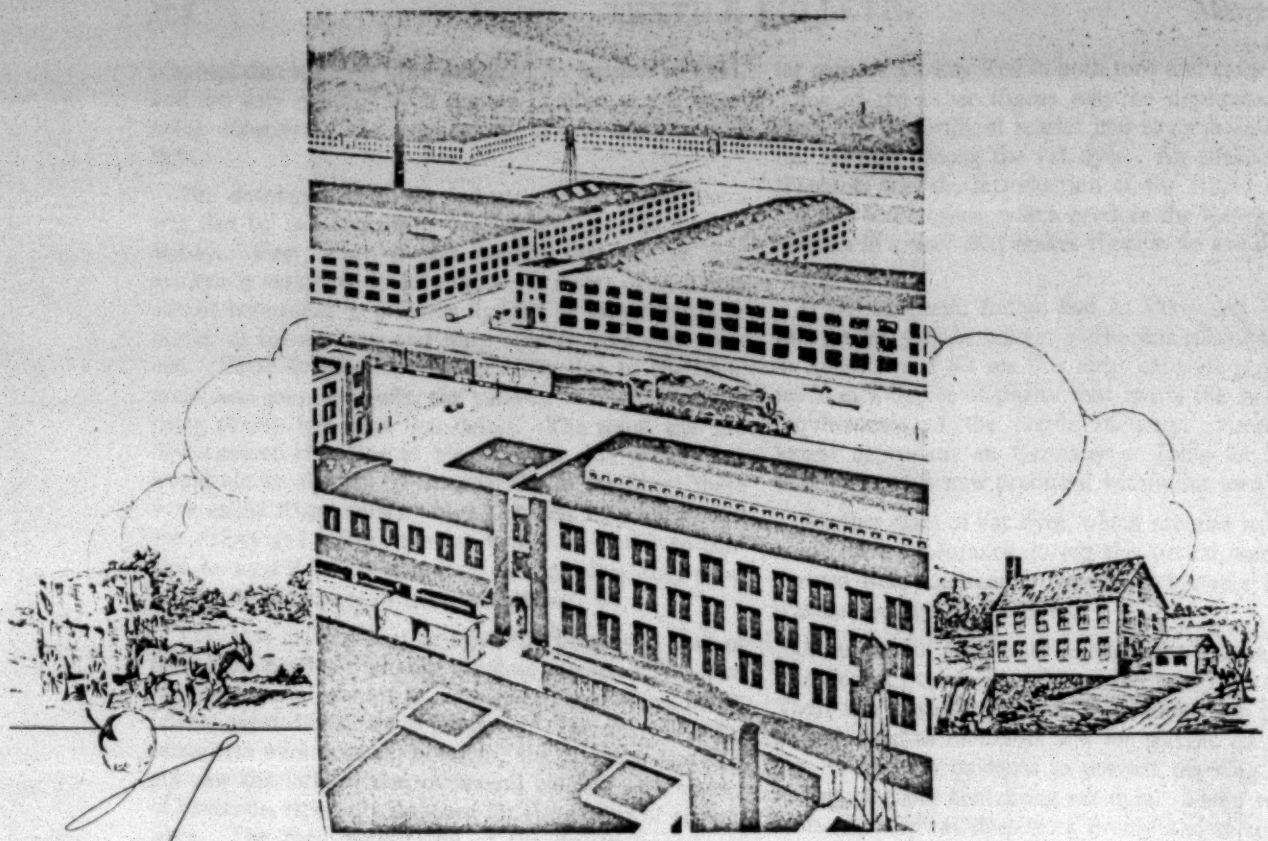
This last quarter-century began just after the close of the year 1910; in the main the period was uneventful and showed little to indicate that a great war was soon to disrupt the peaceful routine of all the world. In 1910 we thought of dyestuffs in terms that were definitely German, although about 10 per cent of the total imports were of Swiss origin. There were a few struggling American producers, who received scant encouragement from either Government or consumers. The dyestuff dealers who were not definitely representatives of the German factories, were getting their supplies mostly from the Swiss manufacturers, with a smaller amount from two or three English concerns. While both the Swiss and English had been able to develop their manufacturing technic and had developed and patented many novelties of their own, the war took both Germans and English out of the picture at once and occupied their attention with munitions above all things. The Germans not only kept up their manufacture of munitions, but were busy developing new high explosives and poison gases, beside researches on substitute materials for all the commodities that were now becoming scarce and in addition the weighty problem of making commercial fertilizers from the nitrogen of the air. Thus the dyestuff field was left to the Swiss, who remained neutral throughout the war. The small Swiss army was needed only for the patrolling of frontiers and their requirement for munitions was correspondingly small, hence their chemists and factories went on developing new dyes and distributing all they could make, wherever the restricted shipping facilities gave them an outlet. Many tons of Swiss dyes came to America and were distributed by dealers, while the American factories were hastily making arrangements to get into production and supply the bare necessities to the textile trade.

Naturally this state of affairs tended to foster the greater growth of the industry in Switzerland, the records showing the introduction of many new dyes and processes, while the other nations were busy destroying property and life. Shortly before the war, the Indigoid vat dyes were patented. These were made by brominating Indigo and later by the addition of other groups, so there was built up a complete series of shades which at that time could not be obtained in the series made from anthraquinone. While later developments have given us Indigoid vat dyes of much better fastness to light and washing, yet at that time they were far ahead of any other class of cotton dyestuffs in brilliancy and variety of shade. Even today these early types are unexcelled as fast colors for silk and wool and are still extensively used in printing cotton, rayon and silk. A fairly steady supply of these products came into the American market all through the war period and enabled textile printers to keep their plants in reasonably constant operation.

From the Indigoid vat dyes there have been other developments in the direction of producing water soluble products which might be applied a manner similar to acid dyestuffs in silk dyeing as well as for prints. These products were given the trade name of Indigosols.

In the year 1914 there were developed new dyestuffs that differed from any preceding classes, in that they were actual chemical compounds of chromium with mordant dyes, frequently the color component was one which could not be applied by any of the well-known mordanting processes, but in its new combination was of a desirable shade and excellent fastness. These dyes, commercially known as Neolans, being dyed as acid colors but possessing the qualities of mordant colors, have done much foster the development in America of the Oriental style rug and also have met the demand for faster colors for piece dyeing of men's and women's wool goods, as well as knitting yarns. They also serve as printing colors, being well adapted for wool, silk and rayon, either alone or in mixed fabrics.

This idea of introducing metals into the dyestuff was developed still farther and we find a series of acid dyes containing copper, which had a better fastness to light than the older series; these were called the Lanasols. The same ideas were applied to direct dyes and resulted in the introduction of the Chlorantine fast colors. During the past twenty-five years these have been improved and the line enlarged so that we now have a full series of shades whose light fastness equals seven on the scale of light fastness. This means that they are equal to the best



from a tiny fibre

A MIGHTY INDUSTRY HAS GROWN

THROUGH the pages of history, fabrics have woven a vivid thread of romance. In America it has been said, and rightfully so, "Textiles truly reflect the pulse-beat of the nation."

Since 1899, SONOCO'S progress has paralleled the giant strides of American textiles. A progressive spirit inspired constant and far reaching research which has enabled SONOCO to pioneer many developments in the field of paper carriers. This same ideal to render the utmost to the industry has built for us an integral part in American Textiles.

We congratulate a compatriot in these endeavors, The Textile Bulletin, now celebrating its 25th Anniversary. Our paths have led in the same direction for a quarter century. May we say, as one "old timer" to another — "GOOD WORK."

●

SONOCO PRODUCTS COMPANY

HARTSVILLE
S. C.

DEPENDABLE SOURCE OF SUPPLY

Naphtol that has ever been produced, in fastness to light, and are only excelled by a limited number of vat dyes, being superior to the average vat dye in resistance to light.

The development of the industry of synthetic fibers was met by two important developments in the dye industry. First, when it was noticed that viscose was subject to variations in its affinity for direct dyes, it was almost impossible to get even dyeings on either yarns or pieces, as barré effects and warp streaks were ever present. These irregularities were mostly due to the blue, green and grey dyestuffs, the yellows, reds and oranges being mostly free from that defect. The result was the development of a line of blues, greens and greys, that would not be affected by irregularities in the fiber; these were called Rigan colors. Now the dyer may know that the stripes and streaks are not within his power to control, because if he has used level dyeing colors, they must be due to differences in twist or tension.

The next development in synthetic fibers was that of the cellulose esters, notably cellulose acetate. This new fibrous material seemed to have great possibilities, but it offered great difficulties to the dyers. The dyestuff manufacturers were not long in solving the problems and this era saw the introduction of several entirely new classes of dyestuffs, especially designed for the dyeing of acetate fiber. The most noteworthy of the developments was the class of dyes known as dispersion dyes; these were derived from amido-anthraquinone, hence were closely related to the vat dyes, but were not water soluble, being highly dispersed pigments held in a proper dispersion medium, first in paste form and later in powder. The Cibacetes are of this class. Then some combinations of basic dyes with higher fatty acids, properly dispersed, were of interest for a time and later a series of azo dyestuffs containing selected chemical groups which made them adaptable to the new acetate fiber. These latter, although not as fast to light as the anthraquinone derivatives, were dischargeable and filled a gap in the available dyes for this rapidly developing fiber. It may be noted that if it had not been for the work of the dyestuff industry, the fate of cellulose acetate might have been quite different.

At the beginning of this last twenty-five-year period, the vat dyes derived from anthraquinone had made their appearance, but the selection of shades was unsatisfactory and the existing products were far below our present standards of fastness. The era has marked the development of many dyes in this class, patents being issued to German, Swiss, English and even American producers, covering new dyestuffs that leave very little to be desired in point of fastness to all influences, with a variety of shades that are only surpassed in brilliancy by the fugitive basic colors.

The beginning of this period marked the introduction of Naphtol AS, as a rival for the famed Turkey Red. Developments along this line have been fruitful, so that today there is a complete range of shades, with many degrees of substantivity in the Naphtols and stabilized diazo sales of the bases, capable of producing colors of many degrees of fastness. Some of the latest combinations to be introduced, being capable of making reds that far surpass Turkey Red in both tone and general fastness. Some of the other shades may be duplicated with vat dyes, but the brilliant scarlet had never been attained in full fastness among the vat dyes. An offshoot from the Naphtols was the introduction of the Rapid Fast colors and the Rapidogens, which produce the identical coloring matters in a way that makes them more suitable for textile printing.

While synthetic Indigo had its beginning long before this period, yet the advent of the war stimulated activity in America and we see this most valuable product being made in a degree of purity that meets the most exacting requirements of the textile industry. America is no longer dependant on Germany or India for Indigo, all that we need is now produced within our own borders.

Another class of vat dyes, which are also sulphur dyes, made their appearance during this period, namely, those derived from Carbazol. This series includes dark blues, scarlets, orange and yellows.

A number of textile auxiliaries came into being during this period; there are almost too many to enumerate. There is a large series from the condensation products of phenol, used as mordants and for specific effects in dyeing. There are oxidants to prevent marking off in kier boiling of goods containing vat dyes. There are preparations to make vat dyes work evenly and to strip them if necessary. There are water repellant finishes, there are additions to print pastes to promote better work and in fact every textile operation has its new product.

The greatest developments are probably the products made from the higher alcohols, produced by the hydrogenation of fats, used as detergents which are unaffected by lime. Then the alkylated naphtylene sulphonic acids used as wetting-out agents. One of the latest is the production of a new series of bases, which have many of the properties of soaps, but in addition have the ability to fix direct dyestuffs, making them fast to even boiling acid water. They are taken up substantively and impart a high degree of softness to all textile fibers. The best known of this series is Sapamine KW.

An interesting textile development is the crease-proofing of fabrics by impregnation with di-methylol-urea, also the Trubinizing process for making shirt collars wilt-proof. Sanforizing is distinctly a mechanical operation and all the improvements in mercerizing are along mechanical lines rather than chemical.

Both the dyestuff and textile industries owe a debt of gratitude to the solvent industry, which has given us such important assistants as triethanolamine, carbitol, cellosolve and the many other glycol derivatives. Mention must also be made of the commercial production on a large scale and the application to textile processing of Sodium Metaphosphate, which has proven to be the most efficient means of combatting the presence of lime in the water supply.

This gives a brief and hasty view of the more important developments; there is little doubt that the next twenty-five years will bring forth still farther progress, but this advance will be made by the full co-operation of the textile, chemical and mechanical industries; each of them is dependent on the other for its opportunities.

Annual Machinery Increase Figures

Knitting Mills Continue to Lead in Expansion

TEXTILE MILLS in the South continued to add additional equipment during 1934. However, the figures on additional spindles and looms are considerably lower than for the preceding year and that for spindles is well on an average year for several years past. This is explained by the fact that the textile Code was in effect for a part of the year and that except for purposes of "balancing equipment," additional productive machinery could not be installed except in unusual cases.

A great deal of new equipment was installed to replace existing equipment, but this is not included in the annual compilations made by this publication.

SPINDLE INCREASE IS LOW

A total of 74,832 additional spindles were installed by Southern mills during 1935. This compares with 322,768 spindles installed in 1934. It is the lowest figure since 1932, when the increase was only 40,482.

LOOMS ADDED

The mills installed a total of 4,367 additional looms during 1935, as compared with 7,135 installed in the preceding year.

KNITTING MACHINE INCREASES

The continued expansion in the knitting equipment of Southern mills continued to be the most interesting development in machinery increases during the past year. A total of 4,774 additional knitting machines were installed in 1935, as compared with 3,530 machines installed in 1934. It is of particular interest to note that 32 new knitting mills were started in the South during the past year.

The figures shown below give in detail the number of spindles, looms and knitting machines installed in the South in 1935. These figures do not include equipment installed for *replacement purposes*, but represent net gains by the mills listed. The figures do not distinguish between installations of new and used equipment.

Clark's Annual Spindle Increase List

The following tabulations give the name and location of each mill in the South that installed additional spindles during 1935, together with the totals by States:

ALABAMA

	Spindles
Dwight Mfg. Co., Alabama City	3,120
Bemis Bros. Bag Co., Bemiston	2,496
Standard-Coosa-Thatcher Co., Gadsden	3,000
Geneva Cotton Mills, Geneva	68
Talladega Cotton Factory, Talladega	2,750
Cowikee Mills, Union Springs	1,296
Total	12,730

GEORGIA

	Spindles
Muscogee Mfg. Co., Columbus	2,168
Swift Mfg. Co., Columbus	2,640
Imperial Cotton Mills, Eatonton	2,240
Gainesville Cotton Mills, Gainesville	14,400
Juliette Milling Co., Juliette	2,016
Total	23,464

NORTH CAROLINA

E. M. Holt Plaid Mills, Burlington	3,700
Parkdale Mills, Inc., Gastonia	260
Tabardrey Mfg. Co., Haw River	1,380
Pinehurst Silk Mills, Hemp	1,600
Henrietta Mills, Henrietta	5,834
Henry River Mills Co., Henry River	2,332
Eno Cotton Mills, Hillsboro	2,448
Neisler Mills, Kings Mountain	64
Phenix Mills, Inc., Kings Mountain	856
Erlanger Cotton Mills, Lexington	184
Rhodes-Rhyne Mfg. Co., Lincolnton	504
Campbell Mfg. Co., Maiden	1,400
Monroe Mills Co., Monroe	1,512
Pilot Mills Co., Raleigh	664
Eastern Cordage Co., Rocky Mount	1,100
Abernethy-Houser Mfg. Co., Statesville	556
Buffalo Mills, Stubbs	220
Weldon Cotton Mfg. Co., Weldon	792
Total	25,406

SOUTH CAROLINA

Clifton Mfg. Co., Clifton	3,770
Pacific Mills, Columbia	2,224
Victor-Monaghan Co., Greer	100
Martel Mills, Lexington	1,216
Monarch Mills, Lockhart	1,524
Martel Mills, Spartanburg	960
Whitney Mfg. Co., Whitney	354
Total	10,148

TENNESSEE

Borden Mills, Kingsport	3,084
Total	3,084

Increase By States

Alabama	12,730
Georgia	23,464
North Carolina	25,406
South Carolina	10,148
Tennessee	3,084
Total	74,832

Clark's Annual Loom Increase List

The following tabulations give the name and location of each mill in the South that installed additional looms during 1935, together with the total by States:

ALABAMA

	Looms
Russell Mfg. Co., Alexander City	64
Bama Cotton Mills, Enterprise	70
West Point Mfg. Co., Fairfax	50
Lincoln Mills of Ala., Huntsville	8
West Point Mfg. Co., Shawmut	2
Total	194

GEORGIA

	Looms
Goodyear Clearwater Mills, Cedartown	4
Bibb Mfg. Co., Columbus	651
Georgia Webbing & Tape Co., Columbus	6
Perkins Hosiery Mill, Columbus	21
Swift Mfg. Co., Columbus	60
Imperial Cotton Mills, Eatonton	14
Seaboard Silk Mills, Elberton	24
Fitzgerald Cotton Mill, Fitzgerald	28
Chicopee Mfg. Co., Gainesville	61
Highland Mills, Griffin	47
United States Rubber Products, Hogansville	11
Bibb Mfg. Co., Porterdale	530
Goodyear Clearwater Mills, Rockmart	4
Peerless Woolen Mills, Rossville	65
Hartwell Mills, Toccoa	12
Oconee Mfg. Co., Whitehall	24
Total	1,562

MISSISSIPPI

Laurel Mills, Inc., Laurel	8
J. W. Sanders Cotton Mills, Starkville	30
Tupelo Cotton Mills, Tupelo	10
Total	48

NORTH CAROLINA

E. M. Holt Plaid Mills, Burlington	19
Chadwick-Hoskins Co., Charlotte	56
Southern Friction Fabric Co., Charlotte	1
Ellenboro Mfg. Co., Ellenboro	10
Central Weaving & Spinning Corp., Fayetteville	14
Holt-Williamson Mfg. Co., Fayetteville	12
Greensboro Weaving Co., Greensboro	4
Pinehurst Silk Mills, Hemp	168
Henrietta Mills, Henrietta	116
Southern Silk Mills, Kernersville	31
Neisler Mills, Kings Mountain	82
Lexington Silk Mills	28
Jennings Cotton Mill, Lumberton	52
Mansfield Mills, Lumberton	88
Chadwick-Hoskins Co., Pineville	4
Patterson Mills Co., Roanoke Rapids	41
Dover Mill Co., Shelby	56
Stonecutter Mills Co., Spindale	8
St. Pauls Cotton Mills, St. Pauls	5
Total	795

SOUTH CAROLINA

Gossett Mills, Anderson	202
Arkwright Mills, Arkwright	60
Pacific Mills, Columbia	42
Riverdale Mills, Enoree	24
Joanna Cotton Mills, Goldville	82
American Spinning Co., Greenville	7
Brooks Bros., Greenville	10
Dunean Mills, Greenville	210
Piedmont Plush Mills, Greenville	4
Southern Weaving Co., Greenville	2
Panola Cotton Mills, Greenwood	44
Inman Mills, Inman	68
Pendleton Mfg. Co., LaFrance	8
Katterman-Mitchell Co., Laurens	40
Martel Mills, Lexington	24
Marlboro Cotton Mills, McColl	56
Newberry Cotton Mills, Newberry	2
Slater Mfg. Co., Slater	118
Kenneth Cotton Mills, Walhalla	6
Ware Shoals Mfg. Co., Ware Shoals	91
Gossett Mills, Williamston	36
United States Rubber Products, Winnsboro	12
Total	1,148

TENNESSEE

Bemis Cotton Mills, Bemis	60
*Gloria Rayon Mills, Johnson City	220
Borden Mills, Inc., Kingsport	264
Total	544

TEXAS

Texas Gauze Mills, New Braunfels	10
Total	10

VIRGINIA

Atlas Silk Mills, Martinsville	54
Martinsville Cotton Mill Co., Martinsville	12
Total	66

Increase By States

Alabama	194
Georgia	1,562
Mississippi	48
North Carolina	795
South Carolina	1,148
Tennessee	544
Texas	10
Virginia	66
Total	4,367

Clark's Annual Knitting Machine Increase List

The following tabulations give the name and location of each mill in the South that installed additional knitting machines during 1935, together with the total by States:

ALABAMA

	Knitting Machines
Browning Hosiery Mill, Bridgeport	190
Cooper, Wells & Co., Decatur	14
Fort Payne Hosiery Mill, Fort Payne	10
Talladega Cotton Factory, Talladega	20
*Davis Bros., Inc., Valley Head	60
Total	294

*Indicates new mills.

(*Continued on Page 114*)

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

The writer has been a subscriber to your valued publication ever since its commencement.

We can not find words to express our feeling of the good that you have done the industry in the 25 years you have been getting out the Bulletin.

Here's wishing you another 25 years as successful as the past!—*J. A. Miller, Vice-Pres., Exposition Mills, Atlanta, Ga.*

* * *

I wish to extend my heartiest congratulations on the 25th anniversary of the Textile Bulletin.

For many years I have been a reader of the Bulletin, and I have learned during these years that it most accurately forecasts developments, and trends in the textile industry, as well as the business world. The many other services and courtesies, rendered by the Bulletin and its staff are too numerous to mention, therefore, I join with your many friends in wishing you continued success in serving the industry.—*F. L. Still, Supt., Victor Plant, V-M. Co., Greer, S. C.*

* * *

We wish to congratulate you on the 25th anniversary of the Southern Textile Bulletin. We wish to say that we like the fearless way in which you present the truth to your readers; in other words, you hew to the line and let the chips fall where they will, regardless of the subject being presented to the public. We need more Editors of this type today. We wish for the Textile Bulletin and its staff many more years of success.—*S. S. Holt, Supt., Travora Mfg. Co., Graham, N. C.*

* * *

I wish to extend my congratulations to the Textile Bulletin on its 25th anniversary. In my opinion this publication, under Mr. Clark's able editorship, has rendered a great service to the textile industry of the South, and if this service is continued during the next 25 years, every mill in the South should be proud of you and the publication.—*Hext M. Perry, Purchasing Agent, Greenville, S. C.*

* * *

I learn that you are celebrating your 25th anniversary and am writing to congratulate you. I have been a reader of the Bulletin for 25 years and look forward to its reception each week. It is my opinion your paper is read by more mill executives than any other textile paper.

Your editorials are very timely and to the point. You are rendering a great service not only to mill management but to operatives as well. I wish you many more happy birthdays.—*John H. Cheatham, Pres., Georgia-Kincaid Mills, Griffin, Ga.*

* * *

I understand that you have arrived at the quarter century anniversary of the life of the Bulletin. I want to take this opportunity to extend to you my felicitations and best wishes for your continued success and prosperity, and also to extend to you my congratulations upon the very fine record which you have made. It is always a pleasure to read the Bulletin and particularly the editorial comment. Your publication is one of the very few trade papers that I never see in office waste baskets—the issues are invariably taken out to be read.—*R. B. Pitts, Pres. and Treas., Hermitage Cotton Mills, Camden, S. C.*

* * *

For many, many years, we have been watching the wonderful work done by the Textile Bulletin and in this, your 25th year, we wish to extend to you and your noble staff the very heartiest of congratulations from every member of this company.

You have been fighting a wonderful battle. We have been watching it from the sidelines and rooting for you.

More power to you and the greatest of success.—*R. J. Frietag, Sec. Treas., Steel Heddle Mfg. Co., Philadelphia, Pa.*

* * *

The Textile Bulletin is to be congratulated upon what it has done for the textile industry and it is a pleasure for us to make this statement and express our hearty wishes of commendation for the future of this splendid publication.—*H. E. Runge, Supt., Mathews Cotton Mill, Greenwood, S. C.*

* * *

It is important today to keep up on current matters. Each year we find that our lives are crowded with so many problems and duties that we have to read those things which are to the point and yet have all the essentials which we need to keep our minds and our acts up to the current affairs.

The Textile Bulletin fills this gap in my reading and may I say to you and your associates, "Congratulations on the 25th anniversary of this real service you are contributing to the textile world."—*A. Stanley Llewellyn, Mgr., Kendall Mills, Camden, S. C.*

* * *

Having been a reader of the Bulletin for many years and having been greatly benefited by reading it, I wish to express my sincere appreciation to you for keeping the splendid publication in circulation for 25 years.

You have rendered a great service to a great industry and you deserve the commendation of all those interested in the future life of the textile industry.

Please accept my hearty congratulations upon the occasion of your 25th anniversary.—*H. Gilmer Winget, Supt., Winget Plant, Victory Plant, Textiles, Inc., Gastonia, N. C.*

* * *

I have been reading the Bulletin almost from its beginning, about 25 years ago, and have found it very interesting and helpful. It seems to me that the attitude of the Bulletin and the things it has stood for and the fearlessness with which matters have been presented in its editorials has been worth a great deal to the industry as well as to the operatives who are working in the different textile branches of the industry, and I sincerely wish its continued success.—*C. D. Welch, Vice-Pres. and Gen. Mgr., Cramerton Mills, Inc., Chamerton, N. C.*

* * *

I am very glad to congratulate David Clark's paper. I wish I could do more. He has been one of the finest friends a man ever had and has done more for the Southern cotton industry than any man and at a great sacrifice to himself. I certainly wish your paper every success.—*H. P. Meikleham, Agent, Pepperell Mfg. Co., Lindale, Ga.*

Annual Machinery Increase Figures

(*Continued from Page 111*)

Florida

	Machines Knitting
*Everitte Hosiery Mill, Tampa	57
Total	57

Georgia

William Carter Co., Barnesville	9
*Camilla Hosiery Mill, Camilla	25
Moreland Knitting Mills, Moreland	25
Newnan Hosiery Mill, Newnan	17
Montgomery Knitting Mill, Summerville	15
Total	91

Mississippi

*Van Dyke Knitting Co., McComb	250
Total	250

North Carolina

Lillian Knitting Mills Co., Albemarle	5
Bossong Hosiery Mill, Ashboro	9
McCrary Hosiery Mills, Ashboro	35
Asheville Hosiery Co., Asheville	3
*Parkway Hosiery Mills, Asheville	150
Baker-Cammack Textile Corp., Burlington	123
Flint Hosiery Co., Burlington	3
Foster Hosiery Mills, Burlington	51
Full-Knit Hosiery Mill, Burlington	25
Grace Hosiery Mills, Burlington	24
Peerless Hosiery Mills, Burlington	20
Pickett Hosiery Mill, Burlington	40
Standard Hosiery Mill, Burlington	29
Sykes Hosiery Mill, Burlington	3
Tower Hosiery Mill, Burlington	8
Hudson Silk Hosiery Co., Charlotte	3
Hoover Hosiery Co., Concord	2
Willis Hosiery Co., Concord	69
*Sherwood Knitting Co., Cornelius	33
Mor-Val Mills Co., Denton	6
Durham Hosiery Mills, Durham	4
Efland-Scott Mills, Efland	20
Elizabeth City Hosiery Co., Elizabeth City	26
Ragan-Parker Knitting Co., Ellerbee	18
Scott Hosiery Mills, Graham	2
*Thompson Hosiery Mill, Graham	40
Bogle-Watkins Corp., Greensboro	80
Riverside Hosiery Mills, Haw River	50
*Bowman Knitting Mills, Hickory	61
Brown Bros. Hosiery Mill, Hickory	20
Hicks & Johnson Hosiery Co., Hickory	3
Hollar Hosiery Mill, Hickory	50
*James Knitting Mills, Hickory	80
*Madaris Hosiery Mill, Hickory	20
*Nu-Silk Knitting Mill, Hickory	42
*Piedmont Hosiery Mill, Hickory	56
*Walton Knitting Mills, Hickory	61
*Westview Hosiery Mills, Hickory	50
*Whisnant Hosiery Mills, Hickory	108
Amos Hosiery Mills, High Point	5
*Central Hosiery Mills, High Point	30
*Kimbro Hosiery Mills, High Point	30
Berry Hosiery Mills, Icard	30
Vance Knitting Co., Kernersville	300
Mountcastle Knitting Co., Lexington	50
Shoaf-Sink Knitting Co., Lexington	75
Dependable Hosiery Mill, Liberty	31
*Lincoln Knitting Mills, Lincolnton	50
Baker-Mebane Hosiery Mills, Mebane	33
Garrou Knitting Mills, Morganton	10
*Piedmont Mfg. Co., Mt. Airy	145
*Quality Mills, Inc., Mt. Airy	25
*Dixie Hosiery Mills, Mt. Gilead	43
Mt. Pleasant Hosiery Mills, Mt. Pleasant	41
Ridgeview Hosiery Mills, Newton	8
*Grenaco Knitting Mills, Rockingham	50
*Clark Knitting Mills, Rutherfordton	24
Harrill Knitting Co., Rutherfordton	138
Summers Hosiery Mill, Salisbury	5
Sterling Hosiery Mills, Spindale	3
*Stanfield Hosiery Mills, Stanfield	52
Clayson Knitting Co., Star	7
Pine Hosiery Mills, Star	20
*Statesville Hosiery Mill, Statesville	30
Stimpson Hosiery Mills, Statesville	6
Mayo Knitting Mills, Tarboro	47
*Fremont Hosiery Mills, Thomasville	115
Maurice Mills Co., Thomasville	40
*Wrenn Hosiery Co., Thomasville	104
*Blackstone Hosiery Mills, Valdese	100
Martinat Hosiery Mills, Valdese	10
Total	3,089

Tennessee

Chilhowee Mills, Athens	2
*Cobble Hosiery Mill, Chattanooga	25
*Harlan-Baugh Hosiery Mill, Chattanooga	25
*Lyerly Hosiery Mill, Chattanooga	50
*Waldridge Knitting Mill, Dayton	62
Miller-Smith Hosiery Mill, Etowah	51
Harriman Hosiery Mills, Harriman	54
Ashe Hosiery Mill, Knoxville	215
Holston Mfg. Co., Knoxville	20
Quality Hosiery Mfg. Co., Murfreesboro	10
May Hosiery Mills, Nashville	67
Dixie Hosiery Mills, Newport	5
O. V. B. Hosiery Mills, Spring City	124
Sweetwater Hosiery Mills, Sweetwater	121
Trenton Mills, Trenton	50
Total	881

Virginia

*Damascus Hosiery Mills, Damascus	34
Dobson-Miller Corp., Pulaski	75
Virginia Maid Hosiery Mill, Pulaski	3
Total	112

*Indicates new mills.

Increase By States

Alabama	294
Florida	57
Georgia	91
Mississippi	250
North Carolina	3,089
Tennessee	881
Virginia	112
Total	4,774

Traveling Down the Years

(*Continued from Page 104*)

and time lost in traveling would seem unbelievable to any salesman who hadn't been through it.

"The salesmen still have to work hard," Mr. Thomason says, "but riding on paved highways in good cars is pretty soft compared to conditions the old-timers had to put up with."

Looking backward over the years that he has spent traveling among the mills, there are a number of things that Mr. Thomason enjoys thinking about.

First of all, he's glad he had a chance to keep up with the textile industry while it was experiencing its great growth. He likes to measure the progress of the mills in terms of the opportunities they have offered to so many people to improve their condition in life.

He remembers with pleasure, the superintendents and overseers in the older days of the industry and their ability to overcome all manner of handicaps to keep their jobs going. He remembers with even more pleasure, the gradual changes that came about to offer superintendents and overseers a vastly greater chance to improve their knowledge and skill and the operating efficiency of the mills.

The greatest single factor in the education of the supervisory force of the mills has been the technical meetings of the Southern Textile Association, Mr. Thomason believes, although he is fully aware of the technical progress made by the machinery manufacturers, and of the increasing importance of the work done by the textile schools.

Mr. Thomason has a high regard for the thousands of men who have never advanced to high positions in the mills, but who, as loyal and faithful employees, have made a distinct contribution to the industry and proved one of its chief assets.

Mr. Thomason recalls his first meeting with David Clark, editor of the Textile Bulletin, a meeting that resulted in a close friendship between the two over a long period of years. Mr. Thomason once erected some cards at the old Ada Mills in Charlotte, where Mr. Clark was in charge. Later the mill purchased additional cards from a competing firm, it being stipulated by Mr. Clark that the cards would be purchased only on condition that Mr. Thomason erect them. So the second firm had to employ Mr. Thomason in order to get the order and he changed jobs to handle it.

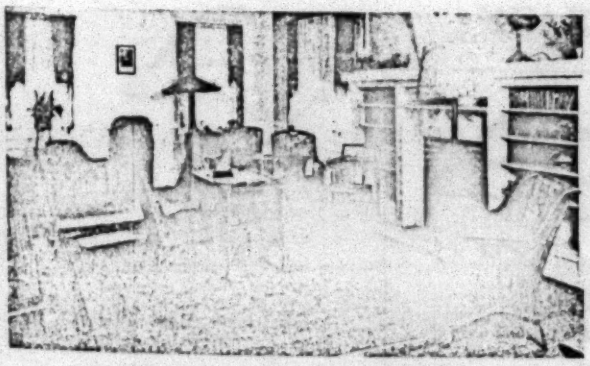
"I want this opportunity to express my opinion of the work Mr. Clark has done for the mills," Mr. Thomason says. "He has consistently been a strong influence in the development of the textile industry in the South and a powerful factor in bringing about improved conditions. He is entitled to real appreciation from everyone in the industry."

"If I had it all to do over again, I would start right back in the mills," Mr. Thomason said in conclusion. "I know of no other industry that offers a better opportunity for young men. The industry has shown wonderful progress in the period that the Textile Bulletin is celebrating, but the progress in the future will be just as great, or even greater."

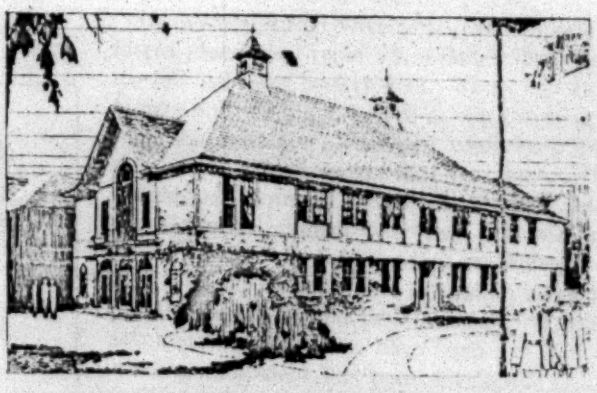
Pacolet Manufacturing Company

PACOLET, S. C., and NEW HOLLAND, GA.

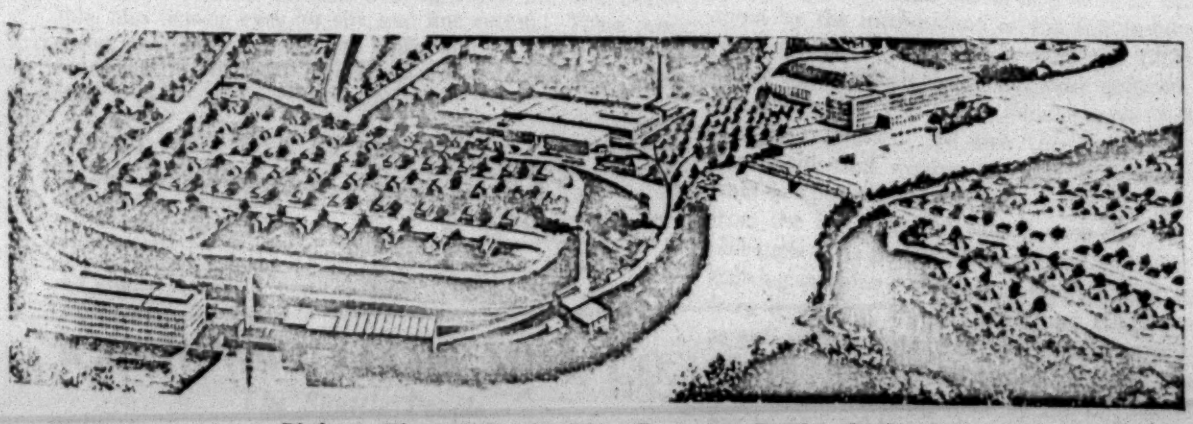
Birdseye View of Pacolet Mfg. Company, New Holland, Ga.



Reception Room in Girls' Club, Pacolet, S. C.



Mill Auditorium at New Holland, Ga.



Birdseye View of Pacolet Mfg. Company, Pacolet, S. C.

Twenty-five Years Progress in Winding Machinery

(*Continued from Page 92*)

point. Under today's economic conditions this is an important item.

Thread Yarn Winding

As mentioned in the story told in the first part of this article, thread yarn winding is sort of the mother of winding machinery, and as such has seen her child go through changes just like all children go through. Twenty-five years ago it was seldom, if ever, necessary to measure the actual yardage put onto a package, the sizing mechanism regulating the diameter of the wound package being ample to meet trade requirements. Today this is not so, and practically all thread yarn winding involves the requirement of the winding machine being equipped with thread meters to definitely measure the actual yardage put on. Also a great deal of thread yarn winding today necessitates waxing devices being applied to the winding machine. Different types of sale package for the thread yarns have come into vogue among which, within the past few years, is the bobbin spool package which has the appearance of a large bobbin, and which is especially desired for certain finished glazed thread yarns. All of these changes have called on the winding machinery manufacturer to develop new equipments and attachments for meeting these demands.

Real Silk Winding

In the past twenty-five years, and especially the last fifteen years, very rapid advancement has taken place in the full fashioned hosiery field. Many new full fashioned hosiery knitting mills, as well as silk throwing mills, have come into existence. This field, comprising both the knitter and the silk throwster, has very materially relied on winding and required most accurate work being done by the winding equipment involved. In this article I feel

that it would be impossible to explain all of the winding problems involved and their solution. It is sufficient to say that these problems have been met and satisfactory winding equipment has been developed.

One of the most outstanding developments in winding for full fashioned knitting has taken place within the past few years. This has been to a large extent brought about by the introduction in the full fashioned knitting plant of the three-carrier system and the use of finer denier yarns which called for more accurate winding of these yarns on the cones which serve full fashioned knitting machines. To meet this condition, an application to silk cone winders has been developed for winding what is known as a pineapple cone. It takes its name from the fact that the wound cone has the shape of a pineapple. Its purpose is to present to the full fashioned knitting machine a cone that permits delivery of the yarn from it without any plucking, and eliminates press-offs, as well as having more surface area to permit better conditioning. Other advantages as well exist with this type of cone, and its acceptance by the full fashioned knitter has been suitable recognition of the winding manufacturer's efforts.

In conclusion I can only say that only a few of the high spots have been touched on in this article. In the textile industry, winding has a very definite place, and it is gratifying to see how well the industry has been served.

Changes in Textile Export Trade

By F. S. Bruyn, President
Textile Export Association of the U. S.

WITHOUT attempting to go into many details of the changes in our export trade in cotton textiles during the entire twenty-five-year period of your anniversary on March 5th, I will endeavor to throw a few highlights on the ups and downs of this branch of our industry during that period.

Previous to 1915 our exports seemed very moderate, particularly in relation to those from Great Britain as in 1913 and 1914 our average was somewhat less than 400,000,000 lineal yards of cotton piece goods against an average of British exports for those years amounting to over 6,400,000,000 lineal yards. During the succeeding war years our exports increased materially and Great Britain's were somewhat reduced. However, from 1915 to 1920, inclusive, average shipments to foreign markets from this country were about 658,000,000 lineal yards and Great Britain's about 4,440,000,000 lineal yards. From 1921 to 1929, inclusive, we had what might be called a normal average in exports of cotton goods which, however, accounted for not more than 7 per cent of our production. The British average for such years was about 4,000,000,000 square yards, or about 80 per cent of their production.

Exports Drop After 1929

After 1929 our exports decreased each year which was, of course, to be looked for during the first years of the depression period, but this has continued through 1934 and 1935, during which time the total exports from this country in other industries have materially increased. For 1935 the export figures on cotton piece goods show only 185,387,000 square yards, or considerably less than 3 per cent of the total production. The outstanding reason for the falling off during the past two years is owing to Japanese competition in the Philippines and in many Latin-American markets. Much has been published regarding the very low wages paid to mill operatives in that country, the tremendous increase in modern machinery and total production, and the necessity for increased exports amounting to considerably over 60 per cent of their total production.

Good Markets

Previous to 1929 our best foreign markets for cotton piece goods were Philippine Islands, Cuba and Canada. These, with South and Central American and West Indian markets, accounted for about 87 per cent of our total exports. Later Canada increased its home production materially and a few years since increased its preferential on British products so this has recently been a comparatively small market. We are hopeful for a moderate increase in trade with that country since the recent reciprocal tariff agreement with somewhat lower duties and less restrictions in customs regulations. Unfortunately we have not succeeded in obtaining favorable terms for our products in trade agreements with such countries as Cuba and Colombia.

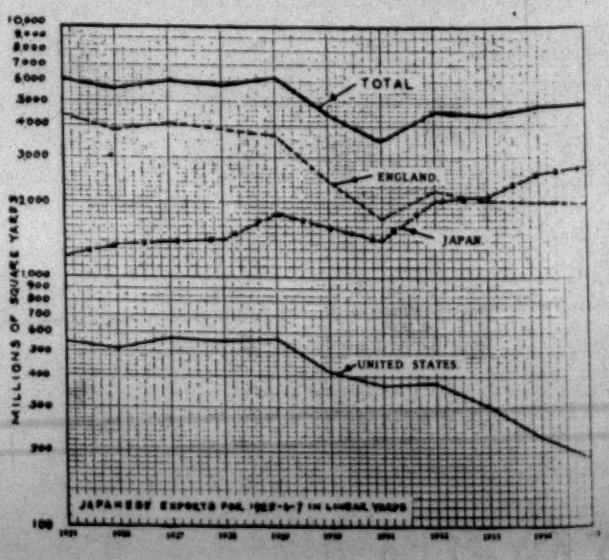
Our Export Association had presented arguments to the Department of State previous to the trade agreements made with the countries named but at that time the entire industry evidently did not take enough interest in our export problems to impress those who negotiated these treatiest with the serious effect on our great industry through a continued loss of exports. It seems hardly necessary to point out that a reduction of, say, 3 to 4 per cent of our total production of cotton goods through the loss of exports is sufficient to increase the surplus of unsold goods to demoralize prices. I feel that our mills should have recognized this but I realize they have recently shown a much greater interest in our export problems and I feel we can look to them for aggressive action in the future. The leading officials of the Cotton-Textile Institute, American Cotton Manufacturers' Association, National Association of Cotton Manufacturers and the Association of Cotton Textile Merchants, are collaborating with the Textile Export Association in efforts to obtain governmental relief for the purpose of regaining our lost export business.

In the foregoing paragraphs I have given figures for cotton piece goods which account for over two-thirds of our exports of cotton manufacturers, but cotton yarn figures have been relatively as bad or perhaps even worse.

(Continued on Page 128)

WORLD TRADE IN COTTON PIECE GOODS

Exports of the three largest cotton manufacturing countrie



American Dyestuffs From Their Beginning

By John L. Dabbs

E. I. DuPont de Nemours & Company

WHILE it is necessary to go back twenty-five years to record the birth of the Textile Bulletin, it is only necessary to go back to 1916 to witness the feeble and troubled beginning of the American dyestuff and coal-tar industry. Back in 1911, even the foreign dyestuff producers were just about entering into the production of many of the faster dyestuffs which are now the backbone of the industry's output. This is particularly true in so far as the production of many of the more complex vat dyestuffs was concerned.

Industry Started in 1916

When we fix 1916 as the beginning of the American dyestuff industry, we do not mean to state that there were not some seven dyestuff assembling plants already in existence here, who used almost exclusively imported intermediates for the manufacture of their dyestuffs. As a matter of interest, statistics show that the Schoellkopf Aniline and Chemical Works, Inc., with their plant at Buffalo, New York, was founded in 1879, with their production constituting about one-half of the coal-tar dyestuffs produced in America at the beginning of the World War. There was also the Heller and Merz Company located at Newark, New Jersey, which stood second in point of seniority and importance, their production in 1914 being estimated at slightly less than one-fourth of the country's output.

The Farbenfabriken vormals Friedr. Bayer and Company of Leverkusen, Germany, had their own assembling plant at Rennsselaer, New York, which was known at that time as The Bayer Company. Their output of dyestuffs just prior to the World War constituted somewhat less than one-fifth of the country's production.

In 1912, the W. Beckers Aniline and Chemical Works, Inc., was founded and located at Brooklyn, New York, their specialty being Alizarin substitute colors. Their annual output was estimated at 180 tons a year just prior to 1914.

The smaller members of the so-called American dyestuff industry at that time were the Central Dyestuff Company at Newark, New Jersey, the Consolidated Color and Chemical Company at Newark, New Jersey, and the Hub Dyestuff and Chemical Company at South Boston, Mass.

Their dependence on foreign sources of supply for the essential intermediates was forcefully shown when England applied its naval blockade, so that shortly after the last direct shipment of dyestuffs in March of 1915 the American textile industry began to experience an acute shortage of dyestuffs. They immediately began to economize greatly in their use of dyes through changes in design, weaves and construction of fabric. It was necessary to again resort to nature's limited dye products which had been abandoned with the advent of synthetic colors; as, for example, natural indigo, logwood, cochineal, fustic madder and quercitron. Buyers for the American textile mills, as well as dyestuff speculators, scoured the world's markets and managed to secure considerable stocks of German and Swiss dyes held in other nations, chiefly China. In this connection, it is interesting to note that, while imports of dyes from Germany ceased entirely after March, 1915, some 3,400,000 pounds of dyes were secured from China during the next twelve months, 1,370,000 pounds from Japan, Hong Kong and British India, as well as 1,300,000 pounds from England.

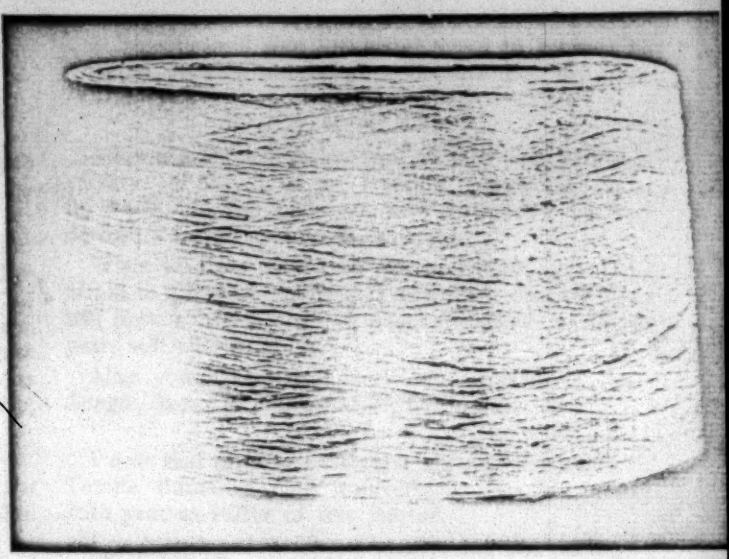
All of us remember the spectacular trip to America of the German submarine "Deutschland," which arrived at Baltimore, Maryland, in July, 1916, with a cargo of about 400 tons of dyestuffs. This total was practically all vat dyes for the dyeing and printing of cotton, which small tonnage, however, proved to be a mere drop in the bucket and was entirely inadequate to take care of their requirements beyond a period of a few months, particularly considering the fact that the world's entire productive capacity was bottled up in the important dyestuff producing countries of Europe. With the acute shortage of dyestuffs, it was but natural that these seven already established American assembling plants should commence to rapidly enlarge their productive capacity through the production in their plants of the necessary intermediates. The old Schoellkopf Aniline and Chemical Works, Inc., had already started their extensive building program in 1916 which increased their capacity many fold based on long-term contracts with the American textile consumers. In this way, they attempted to protect themselves against

(*Continued on Page 140*)

A Complete Service to the Rayon Industry

We frequently have been asked if we make this or that type of Rayon Equipment

***The answer is:* WE DO!**



Cake made on Butterworth fast traverse Pot Spinning Machine. Note the open wind which makes washing easier and much more economical.

IN this equipment is included fast traverse Pot Spinning Machines and Bobbin Spinning Machines. Both these machines are totally enclosed and entirely self lubricated.

Then there is the Butterworth Xanthater which we make in both hexagon and round shapes and in either one or two batch types arranged to receive CS_2 solution by gravity feed.

BUTTERWORTH 3-PISTON TYPE PUMP —both circulating and non-circulating types. Case and Rotor of these pumps are made of a special grade of Meehanite Iron widely known for its resistance to wear. They are arranged to fit any type of pump bracket.

We also make gears, bushings, mushrooms, spindles, and are agents for Steeping Presses, both mechanical and hydraulic, Shreading Machines and Mixers.

To Complete This Service to the Rayon Industry We Also Make TUBE-TEX PROCESSING and FINISHING MACHINES for TUBULAR KNIT GOODS, and a Complete Line of Dye Becks of both Wood and Stainless Steel Construction.

Tube-Tex Machines have speeds up to 35 yards per minute. Special literature describing and illustrating various types of Tube-Tex Processing, Steaming and Finishing Machines will be sent promptly.

In addition to the above machines we also make YARN DYEING EQUIPMENT and FINISHING MACHINES for piece goods.

H. W. BUTTERWORTH & SONS CO.
Established 1820
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New England Office:	*Southern Office:*	*In Canada:*
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Congratulations from our organization to yours, on rounding out 25 years of service to the industry.

BUTTERWORTH *finishing* MACHINERY

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

I congratulate Mr. Clark most heartily on your 25th anniversary, as most successfully accomplishing the career he undertook.

The service he has rendered the textile industry during the past quarter century has been inestimable. The fearless way he has handled every threat and crisis of this great Southern industry has been beyond compare. Your weekly magazine is read with pleasure, and I assure you much interest and information is derived from its pages.—*E. S. Tennent, Purchasing Agent, Spartanburg, S. C.*

* * *

I note that the Textile Bulletin will celebrate its 25th anniversary on March 5th. It gives me considerable pleasure to congratulate you on this occasion.

The stand that the Bulletin has taken on the labor problem, and the fearless manner in which its views have been put before the public are both very highly commendable.

With best wishes for the continued success of the Bulletin.—*B. R. Burnham, Supt., Pelzer Mfg. Co., Pelzer, S. C.*

* * *

I note with interest that March 2, 1936 marks the 25th anniversary of the Textile Bulletin. Upon the approach of this silver anniversary I congratulate you upon the excellent service you have rendered the textile industry of the South during this time.

I regard your magazine as one of the outstanding in its field and believe it has done much to promote the progress of our industry.—*Geo. H. Lanier, Pres., West Point Mfg. Co., West Point, Ga.*

* * *

I have been a constant subscriber and reader of the Textile Bulletin during all these years of its faithful efforts to serve the people connected with the textile interests of the South.

I have always admired Mr. David Clark's open and frank method of attacking those who were making unscrupulous and unfair statements concerning the textile interests of the South.

I wish to congratulate the Textile Bulletin on its 25th anniversary for having filled a definite mission and at the same time having filled it well.—*M. D. Haney, Supt. Republic Cotton Mills, Great Falls, S. C.*

* * *

I understand that on March 5th you will issue a special edition in commemoration of Mr. David Clark's 25th anniversary as editor of the Textile Bulletin. I desire to congratulate both you and Mr. Clark upon this occasion.

During all these years I have been an assiduous reader of the Bulletin, and when it comes, I lay aside everything else and turn to the editorial page.

I am an admirer of David Clark. He is an exponent of the truth; he has the courage of his convictions; he has been a valiant fighter against the enemies of the textile industry, and he deserves the thanks and support of all members of that industry.

I hope he will live for many years to continue his splendid work in our behalf.—*Bernard C. Cone, Pres., Proximity Mfg. Co., Greensboro, N. C.*

* * *

Allow me to congratulate you on this, your 25th anniversary. I have read the Bulletin continuously during its whole life and have not only enjoyed it but have derived a lot of good from its pages.

When we have more men like its Editor, who are not afraid to stand up boldly and state their convictions, we will have a better place in which to spend the fleeting years still allotted to us.

May you have many more anniversaries. — *James Bangle, Supt., Proximity Mills, Greensboro, N. C.*

* * *

I note that on March 5th you are commemorating the Textile Bulletin's 25th anniversary, also Mr. Clark's 25th year as editor of this journal.

I wish to say that I have been taking this publication all these years, and have always found it fair and right to the spot on every subject that it is affiliated with. I think that the Textile Bulletin is one of the best journals that I have ever read, and I hope that for many years to come it will continue to be the same journal that it has been for the past 25 years.

We wish both you and the Bulletin many, many years of success.—*C. D. Taylor, Southern Agent, National Ring Traveler Co., Charlotte, N. C.*

* * *

It is an honor to have the opportunity to congratulate David Clark, himself and your organization comprising the personnel which has developed and constantly improved the Textile Bulletin up to its 25th birthday.

The inspiration from its pages every week is a most valuable aid to its thousands of textile readers, executives and workers alike, who always look for its delivery in their mail with great anticipation. Its business, scientific, editorial and Aunt Becky's personal pages are an assembly of facts which are of great value to us all.

Our best wishes for continued business success is extended to you.—*G. H. Hughes, Supt., Borden Mills, Inc., Kingsport, Tenn.*

* * *

As you reach your 25th anniversary, I feel that it will not be out of place for to express my appreciation of a publication that in my opinion has meant so much to the textile industry of the South for a quarter of a century.

Your publication is read by management, operating executives, and workers as well. This cannot perhaps be said of any other publication in the same field. As an operating executive over the period covered in the life of the Textile Bulletin, I can subscribe to it's worth to men in similar position, and I have seldom been without it each week during publication life.

It is my feeling that if the Bulletin had not been held in high favor by men in the industry it could not have lived and progressed as it has for a quarter century. You and your staff deserve the commendation you will undoubtedly receive from your readers when you come to the date of your Silver Anniversary, and as one of your steady subscribers, I now offer my congratulations, and best wishes for a still more useful continuance through an unending future.—*H. H. Iler, Engineer, Union Bleachery, Greenville, S. C.*

TEXTILE BULLETIN

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DAVID CLARK ..... *Managing Editor*
D. H. HILL, JR. ..... Associate Editor
JUNIUS M. SMITH ..... *Business Manager*

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Other Countries in Postal Union 4.00
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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

An Acknowledgement

IT has been a keen disappointment to me that I have not been allowed any part in the preparation of this *Silver Anniversary Number*. Having suffered a mild heart attack last December I am still obeying orders from a doctor who asserts that rest is necessary and is a certain and sure cure for my malady.

For this splendid number I am under obligations to all the employees of the Clark Publishing Company, and especially to Associate Editor D. H. Hill, Jr., and Business Manager Junius M. Smith.

During this, my first prolonged absence in twenty-five years, they took the full burden upon their shoulders and to them I give credit for the size and quality of this Silver Anniversary Number.

I wish to express my grateful appreciation to those who have made this number a success by contracting for the more than 110 pages of advertising space which it carries. I also appreciate the many letters which have come from cotton manufacturers, and which so generously commend my efforts in behalf of the textile industry of the South.

Just before Christmas 1910 I found it advisable to sever my connection with a textile journal, after two years as editor, and in January, 1911, I found myself with an ambition to publish a textile journal, but with only $600 in cash and with the knowledge that I had no sources from which to secure additional funds. I found, however, that I had a greater asset than cash and that was the friendship of men in the textile machinery and supply business and of the men in the cotton mills, many of my best friends being among the superintendents and overseers.

Two men, John L. Dabbs and Fred H. White, both of Charlotte, played a large part in the decision which I finally made because both insistently urged me to make the attempt and on January 10, 1911, I spent about half of my capital in printing a "specimen issue." With that "specimen issue" and with approximately 100 subscribers which I secured as the result of a circular letter, I left for New England.

I have often wondered, since then, how I was able to secure enough advertising contracts to be able to begin publication on March 2, 1911, but somehow the Draper Corporation and many others seemed to have faith in my purposes and in my ability to secure an adequate list of subscribers.

From the beginning I had one fixed idea which was that the first consideration of any textile publication, was to render service to the textile industry and to defend it from the unjust attacks of its enemies.

Although my attitude and my efforts have often been grossly misrepresented by professional labor leaders and others who have sought to exploit the cotton mill employees of the South, I contend that my interest in the employees has been just as great and just as sincere as any interest I have had in serving those connected with the management.

I believe that *Textile Bulletin* has done much to maintain wages and to secure improved living and working conditions for textile workers.

During the twenty-five years I have witnessed the passing of many of those who played a big part in the building of a great textile industry in the South and I have watched the successful advancement of younger men, many of them the sons and grandsons of the former leaders.

The textile industry of the South shall emerge successfully from the uncertainties of the present era. I look towards the future with much optimism.

DAVID CLARK.

The Twenty-fifth Milestone

IT is with a mingled feeling of pride, age and satisfaction that we reach our twenty-fifth milestone. The years that have passed since our first issue went into the mails have been good to us in more ways than one, for which we are thankful.

In presenting our Twenty-fifth Anniversary Number, all of the members of this organization are duly thankful for the assurance of our friends that we have helped do a good job. We take pride in that fact. At the same time we acknowledge with real appreciation that the support and encouragement of our friends ha

WINGS FOR AMERICA!

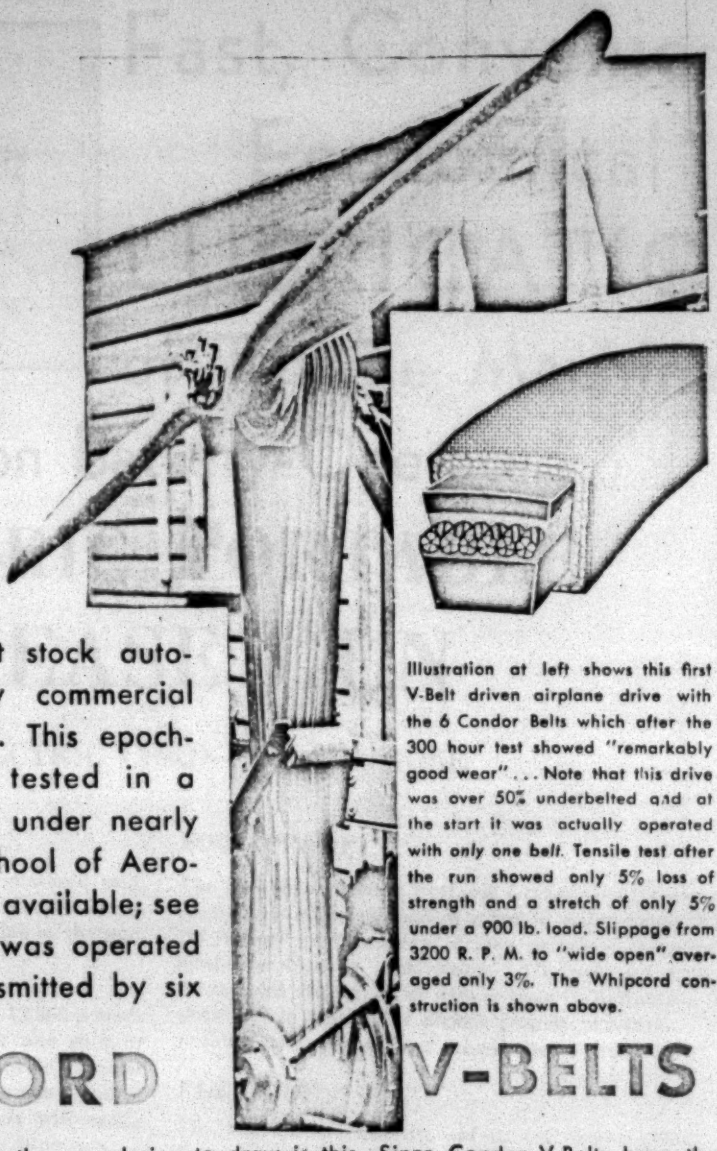


Illustration at left shows this first V-Belt driven airplane drive with the 6 Condor Belts which after the 300 hour test showed "remarkably good wear"... Note that this drive was over 50% underbelted and at the start it was actually operated with *only one belt*. Tensile test after the run showed only 5% loss of strength and a stretch of only 5% under a 900 lb. load. Slippage from 3200 R. P. M. to "wide open" averaged only 3%. The Whipcord construction is shown above.

The end of the long road to the development of a practical "flivver" airplane is in sight. A way to drive an airplane propeller from a low-cost stock automobile motor, fueled with ordinary commercial grades of gasoline, has been found. This epoch-making drive has been thoroughly tested in a government-supervised endurance run under nearly flight conditions at the Casey Jones School of Aeronautics at Newark, N. J. (Official report available; see below). The engine-to-propeller drive was operated for 300 hours, the power being transmitted by six

Condor WHIPCORD V-BELTS

It is significant that Condor V-Belts were selected for the drive. *These were stock belts.* The endless Whipcord strength member placed in the neutral axis area, a design originated by Manhattan, makes such performance possible. For you, at the present moment, the important conclusion to draw is this: Since Condor V-Belts have the strength and wearing quality to enable them to pass such a grueling test with "flying colors", they must certainly be *the* belts for your industrial drives. They cost no more. Their outstanding performance is entirely due to their

8-POINT BALANCED CONSTRUCTION

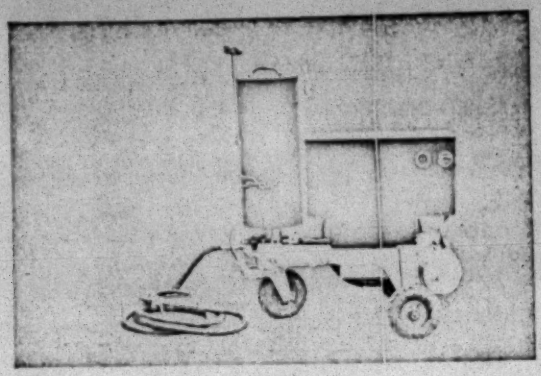
1. Minimum Inelastic Stretch
2. Wide Margin of Strength
3. Uniform Flexibility
4. Maximum Resistance to Structural Breakdown
5. Smooth Running
6. Maximum Traction
7. High Resistance to Side Wear
8. Correct Lateral Reenforcement

Let us send you the Air Commerce Bulletin (left) describing the Casey Jones test with Condor V-Belts and our latest General Catalog and V-Belt Engineering Data Book (right) giving full particulars on Condor Whipcord V-Belt construction.

Sold by Leading Jobbers — Manufactured by the Makers of Condor Products.
Belt, Hose, Molded Goods, Industrial Brake Lining, Rubber Covered Rolls and Tanks.

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES and FACTORIES, 24 TOWNSEND ST., PASSAIC, N. J.



Fast, Convenient, Economical LUBRICATION of Textile Machinery

with the Precision Battery-Operated ELECTRIC PORTABLE GREASE GUN

NO ELECTRIC CORD—NO AIR HOSE

ABSOLUTELY PORTABLE:

It is operated by its own built-in battery powered unit, without tangling and costly air hose and electric cords. You simply roll the gun to the job—not the job to the gun.

SUPER, ADJUSTABLE PRESSURE:

The Precision Electric Portable gun develops 12,000 pounds instant pressure at tip of hand control for one shot or continuous flow. This pressure is also adjustable to lower than 1,000 pounds if desired, for special grease applications, such as small electric motors, etc. It will easily lubricate a truck carrying a pay load of 30,000 pounds.

SAVES TIME AND MONEY:

You simply roll the Precision Electric Portable Grease Gun to the job, and begin to grease. Adjustable pressure and ease of operation cuts greasing time from ¼ to ½ the usual time, and enables one man to do the complete job.

FOOL PROOF:

The Precision Electric Portable Grease Gun is mechanically correct. It was designed by a motor maintenance engineer. Its battery powered cam driven principle of operation is simple and easily understood. All parts are built extra strong and sturdy. The grease hose is guaranteed for one year and is tested for 26,000 pounds pressure. There is nothing complicated and no expensive replacement parts.

FLEXIBLE:

The absolute portability, safety and dependability of the Precision Electric Portable Grease Gun makes it ideal for any pressure lubrication job; textile machines, line shafts, trucks, automobiles, and in fact wherever there is a bearing to be lubricated through a grease fitting. It is guaranteed to be free from defects in workmanship and materials. It is built for years of trouble-free service. It is the answer to your lubrication problems.

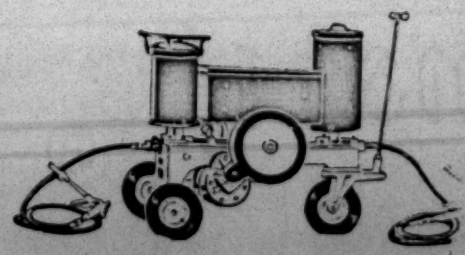
ABSOLUTELY PORTABLE-BUILT-IN POWER

Adjustable Pressure Up to 12,000 lbs.

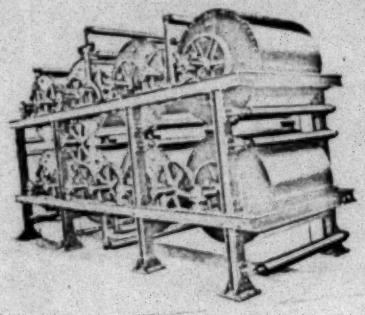
A Line or Wire from You Will Bring Our Representative and Machine for Free Demonstration—No Obligation

PRECISION Gear & Machine Co.

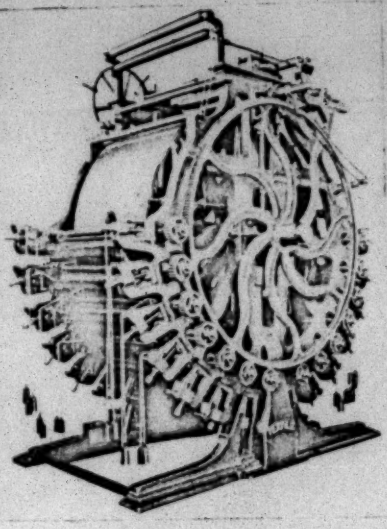
CHARLOTTE, N. C., U. S. A.



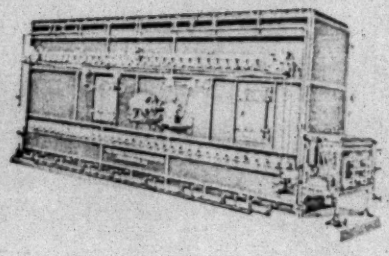
3 TYPICAL UNITS FROM *Textile's* COMPLETE LINE OF PRINTING EQUIPMENT



8 Cylinder Back Dryer



Heavy 14 Color Printing Machine



New 24' Ager

"FROM THE LOOM TO THE CASE"

Textile is the only manufacturer in the United States building a complete line of Bleaching, Mercerizing, Dyeing, Printing and Finishing Equipment. In addition to the machines illustrated such items as listed below are also offered:

Printing Machines 1 to 14 colors
Printing Equipment for Cotton Warps
Back Framing for Printing Ranges
Back Drying Machines—cylinders 48" to 84" dia.
Drying Machines, Hot Air
Cylinder Drying Machines, all types
Color Mixing Kettles, 1 to 400 gals.
Color Strainers, Vacuum end Brush
Copper Dippers, all types and sizes
Forcing Jacks, Hydraulic or Screw Types
Agers, all types
Steamers, Cottage or Continuous
Winding Reels for Steamers
Washers, open width or rope types
Soapers, open width or rope types
Winders, single or double drum
Electric Guiders
Laboratory Printing Equipment

Illustrations of any or all types of equipment will be mailed upon request. No obligation.

The Textile Finishing Machinery Co.

New York Office
50 Church St.

Southern Office
Johnston Bldg., Charlotte, N. C.

Providence, R. I.

Manufacturers of Machinery for

SINGEING, BLEACHING, MERCERIZING, DYEING, DRYING, PRINTING, FINISHING and SANFORIZING TEXTILE FABRICS

served as an inspiration to do all we could to make the *Textile Bulletin* interesting, useful and valuable to all of those connected with the industry which we serve. That we have been able, in some measure, to make this publication an integral part of the textile industry in the South is the source of great satisfaction to us.

Looking backward over the years, we consider that one of our real privileges is that we have enjoyed the friendship of so many men in the mills, both in high places and low. They have not only been friendly, but have consistently lent a helping hand in all our efforts to serve and made the way much easier by their kindly and helpful attitude.

We cannot pass this opportunity by without also expressing our gratitude for the friendship of the representatives of the textile machinery and supply companies. In a great many ways their service has far exceeded the personal duties to their companies and in all they have rendered a service to the mills that has added much to the progress of the industry. Our position has enabled us to appraise the worth of these men in their field. Their friendship rates high among our assets.

Mr. Clark, in the preceding editorial, expressed his personal appreciation for all those who have helped him carry on through his first 25 years as editor of the *Textile Bulletin*.

As we enter our twenty-sixth year, every member of this organization joins him in expressing that thought.

To all our friends—thank you.

Annual Review Figures

OUR Annual Review figures, published elsewhere in this issue, shows that the number of spindles and looms installed in Southern mills last year was considerably below the average of most recent years, but that the building of knitting mills and installation of additional knitting equipment continued at a very steady rate.

Clark's Annual Spindle Increase List shows that only 74,832 spindles were installed in 1935. This is far less than has been the case in many years; in fact being the smallest number since 1932, when only 40,482 spindles were added.

The figures show that a total of 4,367 looms were installed in 1935, as compared with 7,135 looms installed during the previous year.

The limitations imposed upon the installation of additional productive equipment by the Code, which was in effect part of last year, is one reason why the machinery added last year was smaller than that installed in recent years.

It must be borne in mind that these figures do not include machinery bought for replacement purposes.

The knitting mills of the South, which for some years past have led all other divisions of the industry in expansion, continued to set the pace last year. A total of 4,774 additional knitting machines were installed, or roughly about a thousand more than during 1934.

The record of increase in Southern mills in recent years has been:

1913	435,300
1914	329,410
1915	340,886
1916	619,682
1917	546,168
1918	319,546
1919	425,844
1920	663,446
1921	298,328
1922	285,868
1923	730,812
1924	400,848
1925	530,396
1926	343,800
1927	565,500
1928	331,692
1929	419,790
1930	150,688
1931	139,076
1932	40,482
1933	279,750
1934	322,768
1935	74,832

The 1935 spindle increase by States was:

Alabama	12,730
Georgia	23,464
North Carolina	25,406
South Carolina	10,148
Tennessee	3,084
Total	74,832

The 1935 loom increase by States follows:

Alabama	194
Georgia	1,562
Mississippi	48
North Carolina	795
South Carolina	1,148
Tennessee	544
Texas	10
Virginia	66
Total	4,367

The 1935 knitting machine increase list by States follows:

Alabama	294
Florida	57
Georgia	91
Mississippi	250
North Carolina	3,089
Tennessee	881
Virginia	112
Total	4,774

Changes in Textile Export Trade

(Continued from Page 120)

Here we have lost some trade through increased manufacturing in several Latin-American countries.

In distinction to the disappointments at home the Export Association did succeed in obtaining from the Cuban government a great measure of relief against Japanese competition through an order effective from April 1, 1935, which has very materially restricted imports of Japanese cotton goods to that country. Large quantities of Japanese goods arrived there before the restrictions went into effect and the digestion of this additional merchandise did not at once enable our exporters to greatly increase their sales to Cuba but there has been a gradual and much needed additional amount of business booked.

I sincerely trust that the recently aroused interest among the producers both in your section and throughout the country will continue and that they will increase their efforts to impress upon their Senators and Congressmen as well as other Washington officials the great importance to our industry and all connected with it of re-establishing our export trade in cotton manufactures.

I feel that if our industry would sell about 7 per cent of its production for export, this would take a heavy burden off the domestic market and also considerably reduce factory overhead and manufacturing costs so even if goods sold for export do not fetch full domestic prices, it would assist in keeping factory costs lower. England, Japan and other foreign countries are so much more awake to the value of exporting. We should endeavor to create more interest in exporting textiles and yarns throughout our great industry. The graph will very effectively illustrate how our exports to foreign markets are declining to an alarming extent.

Durham Hosiery Shows Net Loss for 1935

Reports of Durham Hosiery Mills for year ended December 31, 1935, certified by an independent auditor, shows net loss of $76,093 after interest, depreciation, inventory adjustments, etc. This compares with net profit in 1934, of $47,904 equivalent to $1.46 a share (par $100) on 32,737 shares of 6 per cent cumulative preferred stock.

In addition to the loss for year 1935 company has set aside $42,718 from earned surplus, to provide for losses and expenses incident to the discontinuance of seamless hosiery operations.

Current assets as of December 31, 1935, including $150,310 cash amounted to $926,783 and current liabilities were $252,138, compared with cash of $102,474, current assets of $917,770 and current liabilities of $175,856 at end of preceding year. Inventories were $648,790 against $641,552.

Total assets were $4,377,160 at close of 1935, against $4,294,494 at end of 1934, and earned surplus was $26,097 comparing with $145,443.

Capital stock at end of 1935 consists of 32,737 shares (par $100) of 6 per cent cumulative preferred, on which dividends in arrears amount to $31 per share, 12,500 no-par shares of Class A and 37,500 no-par shares of Class B stocks.

Era of Scientific Textile Research:

(*Continued from Page 43*)

can tell you of many other new research results which they may regard as more important, among them pH, or hydrogen ion, control of processing liquors, the aliphatic alcohols, etc.

ORGANIZED CO-OPERATIVE RESEARCH

The textile industry has now entered an era in which it must utilize scientific (and economic) research as one of its routine and necessary operations. It is agreed that few textile mills, other than those manufacturing synthetic yarns, can afford to engage in scientific research which is likely to involve fundamental investigation. The co-operatively organized and financed type of research, developed for the first time in 1934 by U. S. Institute for Textile Research, Inc., has already demonstrated that it provides this service at a cost so low as to make it available to the smallest mill. U. S. Institute is a non-profit body which already has in its membership a representative cross-section of the industry, and an able directorate and research council whose services are donated.

The first research project organized on this co-operative basis involves a fundamental study of the sizing of cotton, rayon, silk, and wool warp yarns, involving among all other principles involved in the slashing, weaving, desizing and finishing. While the organization of this study will be described briefly, for further details of this and U. S. Institute's work I must refer the reader to the latter body.

The question of whether or not warp sizing was a needed subject for research was passed upon at a conference in New York City in May, 1934, attended by some 150 interested mill men. By their unanimous vote U. S. Institute was obligated to undertake the study. Its research council prepared a tentative program for a two-year study estimated to cost $10,000 and submitted it to the directors for action. It was approved, and since the Institute had no research funds available, the secretary was authorized to devise and conduct a plan for its financing. Fifty co-operators at $100 a year for the two years were needed. Inducements offered, in addition to the honor of making the results of this study available to the industry, included contributing membership ($100 a year) in the Institute, and the sole privilege, with all other contributing members, of receiving confidential reports of the research during its progress.

Meantime, the executive committee, acting for the directors, had selected the Division of Industrial Co-operation and Research of M. I. T. to furnish facilities for the study; had appointed a committee of three to have full charge of its administration, the selection of a director and staff, of an advisory committee, of a contact man at M. I. T., and other preliminary details.

The raising of the needed money was greatly aided by the offer of the Textile Foundation, after a little more

than a quarter of it had been raised, to match dollar for dollar all money that the Institute could raise up to $5,000. That generous offer was soon matched, and the Administration Committee started its organization work immediately thereafter. They engaged as the director of the study one of the world's leading authorities on starches, and as the assistant director an M. I. T. instructor specializing in organic chemistry. The director brought with him a man who had been studying starches under him, and the Institute has had this man's services free of cost. Actual research was started in June of last year. The first confidential progress report went to co-operators in August. A second and third series of reports reviewing final basic work on starches as sizing materials is now nearly ready, and the second stage of the program covering rayon sizing will soon be started. Those associated with the study are authority for the claim that the basic work on starches, completed in less than eight months, will be found more comprehensive and informative than results of foreign research covering as many years.

Anyone who has engaged in a similar type of basic research on a private basis will realize the superiority of the co-operative type of study in its ability to secure free of expense the services in an administrative and advisory capacity of a large number of the industry's leading authorities on the subject under investigation. They will not be aware, however, of the large amount of valuable information that has been freely volunteered by firms co-operating in the financing of the study; of the materials and laboratory equipment donated or made available at cost; or of the mills that have donated material, machinery and services of their personnel for experimental work. I have estimated that what the co-operators in this warp sizing study are getting for $200 each, and a total of $10,000, could not be purchased on a private basis for much less than $100,000, and of course most of the advisory services would not be available to a research conducted for private gain.

Indirect Benefits

And now allow me to call to your attention some of the indirect benefits that have already accrued and are yet to accrue to the industry from this co-operative warp sizing study. First, this project was financed on a 50-50 basis by the foundation and U. S. Institute, thus increasing to that extent the effectiveness of the Foundation fund by 100 per cent. Second, from the time that this study was first publicized the textile press has run more articles on sizing materials and methods than during their whole previous history; the industry suddenly awoke to the possibility that sizing machinery and methods might be improved; and they have been improved and further improvements that are almost revolutionary are in the making. Tension control, and moisture control of the warp yarns on the slasher have emerged; also improved section-beam creels, and a completely redesigned slasher that operates satisfactorily on sheeting yarns at 100 yards a minute; and a slasher on the cotton principle for rayons which also allows marked increase in speed. The firms supplying starches, gelatins and other sizing materials and compounds are also

keyed up in efforts to meet a demand for more efficient sizing, and the new conditions which are created by increased slasher speeds.

This is an incomplete summary of the developmental work designed to make the warp sizing process more efficient, all of which was initiated after the Institute in 1934 gave wide publicity to its backwardness and its need of scientific research. The mills, machinery and supply firms which are engaged in this development work deserve great credit for having visualized this opportunity and capitalized it. No one or two privately financed mill researches could have started any such general movement. The Institute did not seek deliberately to stimulate these indirect results and benefits of its research conducted upon a non-profit and broadly co-operative basis by an organization of recognized authority and standing.

The Cost Accountant Twenty-five Years Ago and the Cost Engineer of Today

(Continued from Page 54)

calculations the cost for which any and all yarn counts or constructions of fabric then in production can be made and provide for computing in a few minutes the cost for which any other product can be made that may be adapted to the mill.

Fourth: To establish an accurate method that can be handled quickly for disclosing at any time all important departures in cost from the standard as established, and whenever desirable the location of these departures and their cause, i. e., the separate amounts that are respectively due, (a) to subnormal machinery production, (b) to idle machinery and time, (c) to changes in established labor rates, complements or other expenses—thus making it possible to apply corrective measures, if due to conditions that may be corrected or controlled. The unit cost of these departures per pound or per yard are of course to be applied to the standard cost of each product for the purpose of quoting prices and to reconcile cost calculations with actual expenditures.

Fifth: To establish a plan by which the total profit or loss, on current production, as well as the profit advantage or disadvantage of each yarn count or construction of fabric can be obtained quickly, each week if desired—the results to be presented so as to show in parallel, not only a comparison between the actual profit or loss *than realizable* on each construction of fabric, but that which could be obtainable, with current prices, under *any other definite plan of operation and production.*

The work of the textile cost engineer, like that of the scientist is to substitute facts for appearances and demonstrations for impressions, and to do so skillfully and quickly without undue disturbance or interference.

Textile Merchandising Changes in the Last Twenty-five Years

(Continued from Page 45)

uted to the distributive system or merchandising in the broad sense of the word embracing control and allocation of production, control of competition, elimination of evil

trade practices, and pricing of product at fair market value.

In this statement, however, it must be recognized that the general sales policies of the industry and actual fixing of prices are determined largely by the mills themselves so that criticism of the distributive system does not necessarily imply that Worth Street has failed to do its part.

In cotton textiles, the naming of prices is in the hands of too many widely separated authorities. Mill owners in all the cotton cloth producing states dictate to their agents the prices which shall be asked, and there are too many cotton goods commission houses each attempting to do the bidding of their respective mills.

Should Segregate Various Fabrics

The segregation of different classes of fabrics into specific centres of distribution would be a move in the right direction. If there could be selling houses in New York that were recognized as headquarters for certain classes of cloth, those houses and the mills which they represent could determine the fair market value for the cloth distributed through each unit.

Let us suppose, for instance, that from 60 to 80% of all the print cloths were sold through one house; it would be a simple proposition for that house to allocate its orders evenly to the mills which it represented, and it would be comparatively easy for that house to name prices which would regulate the market. The product sold outside of this unit would necessarily have to swing into line. It would not be necessary for the larger unit to meet lower prices even if the small groups were foolish enough to name them. It is a fact that 80% of all print cloths are now sold through five large Worth Street houses, but these five houses and the mills which they represent are in such fierce competition that there is no uniform policy or price.

If a plan of this kind were worked out for print cloths, it could be applied to other fabrics.

It is conceivable that the majority of Class A B and C sheetings and drills, 40-inch and narrower, could be concentrated in one selling house, that more than 50% of wide fabrics, sheetings, drills, twills and sateens could move through one channel, following this theory, there could be a headquarters for each of many groups as, for instance, colored woven men's wear, colored woven women's wear, flannels, upholstery and drapery fabrics, packaged goods, converted fabrics and so on through the list.

There are many who believe that concentration of selling after this manner would accomplish more than anything else, but there are obvious difficulties. There are many mills that make goods in several different classifications, and this would mean dividing the mill account between several selling agencies. Furthermore, there are commission houses that own all or a controlling interest in certain cotton mills, and these commission houses are reluctant to entrust to any other house the sale of goods made in their mills, in addition to which the houses are unwilling to agree to the loss of commissions which would result from the transfer of their accounts.

Holding Company Plan

A number of years ago, a movement was set on foot to

organize "The United States Textile Corporation." It was to be a big holding company in which mills and commission houses were each to have stock in proportion to their volume and importance. It failed to materialize because the personal element could not be worked out and because of the question as to whether the control was to rest with the mills or with the commission houses.

The idea had merit and might now be the solution for the industry. It would have to be initiated and carried through by scome powerful capitalist group, and the question of participation and personnel would have to be settled by the money interests that undertook the merger.

Under such a plan, the mills would retain their present identity but would be given stock in the selling agency in proportion to their size and volume. In like manner, the existing commission houses would be given stock in the holding company and, though many of them would be liquidated, the stockholders and partners would receive stock in the proposed United States Textile Corporation as compensation for what each had accomplished in assembling mill accounts.

The end attained would be a super-commission house with possibly as many as ten divisions, each of these departments specializing on a limited number of fabrics or constructions going to special classes of trade.

This large unit would absorb the best brains in the market. It is easy to see the economies to be effected by a centralized credit and accounting department, by concentrating of selling space, by elimination of out-of-town offices, and by central control over traveling salesmen and mail order departments.

If the United States Textile Corporation were operated on present standard commissions, there would be a satisfactory return and, under the plan, the participating mills as a group, and the participating commission houses as a group would share these profits. If the mills applied these profits to distribution, they would show a much smaller selling cost.

The yardstick for stock allotment might have to be based on something other than mere volume, but in principle, the stock apportioned to the mills as a whole and to the commission houses as a whole, should be approximately equal.

There are quite a few commission houses and many selling house executives that are willing to leave the future to others, but it is unreasonable to expect retirement without compensation. By the plan of giving stock in the super-commission house, these eliminations could be accomplished.

It is obvious that a corporation of this size would need large working capital for discounting sales, carrying customer accounts, assumption of credit losses and making advances, at times, on accumulated mill merchandise. To provide for this, arrangements could be made with one or more companies now engaged in textile factoring, or an issue of preferred stock could be sold to the participating mills, commission houses and factors.

The question will naturally arise as to how the busi-

ness would be apportioned to the various mills, and the answer lies in the fact that the mills would have to follow the advice of its selling agent in regard to production control and the mills would have to agree to this dictatorship and naturally the percentage of curtailment, if necessary, would have to be uniform. If production is thus regulated to demand, the apportionment of orders to the different mills becomes easy of accomplishment.

There is much to justify the opinion that the trouble with cotton textiles lies in the distributive system. If this theory is right, the time is opportune to try centralized distribution through unit sales' control of a large enough number of looms to dominate the adjustment of production and the naming of prices.

Textile Mill Lighting—Past and present

(Continued from Page 53)

Distinctly this system (Fig. 5) is not a return to the old local lighting. It is a Group or General Lighting system supplemented by additional footcandles at those places where more light is required for easy seeing than is provided by either of the overhead types of lighting.

The supplementary units are spotlights and floodlights, etc., scientifically designed to eliminate annoying glare.

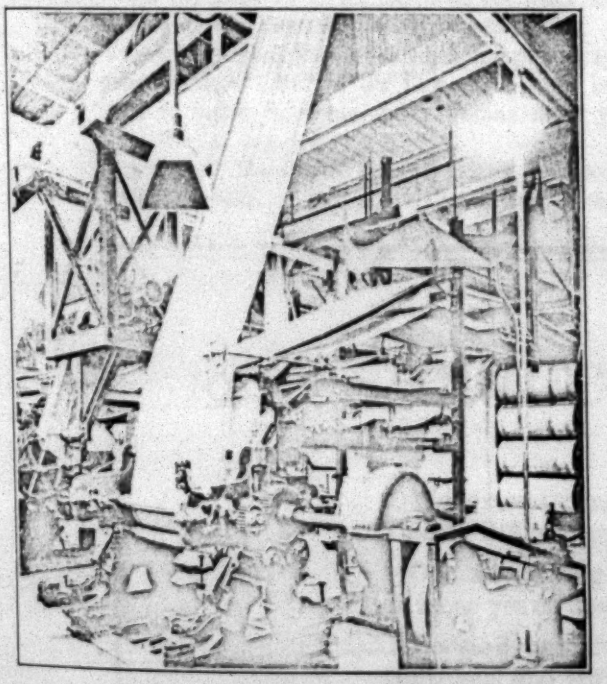


FIG. 5—*The Science of Seeing tells us that operations requiring close visual concentration require levels of illumination of 100 or more footcandles. Such lighting is most economically provided today by supplementary units, used in conjunction with the general lighting system, hence the name "General Lighting Plus."*

They do not dangle annoyingly before the eyes of the operator at work, but are mounted permanently out of the way.

It has been the good fortune of our generation to witness great progress in the development and usage of artificial lighting. But, great as have been the achievements of the past twenty-five years, those of the next quarter century will undoubtedly be greater.

Today, for instance, the Industrial and School Lighting Committee of the Illuminating Engineering Society is making a study of seeing and lighting problems in industrial plants, including textile mills. Their studies may point the way to a new era of greater industrial efficiency.

Superintendents and Overseers Deserve Much Credit

(*Continued from Page 49*)

bring smiles to most overseers and superintendents today.

For example, the batteries or hoppers, as we called them then, were fastened to the frame of the loom with two bolts but no dowell pins. The bolt holes were slotted for adjustment. Sometimes the bolts would work loose and a weaver would look down the alley and see a battery sticking out in the alley. He would make a dive for it to push the battery back in place before it changed filling.

And now, look at this calendar which shows a picture of a folder—the folder table has been greatly improved, I'll admit, but don't you think that that folder still looks very much like the folder we had 25 years ago?

On the other hand, let me point out what some overseers and superintendents have done to folding. Although wages have more than doubled, hours of operation have been reduced. But in the face of all these handicaps, well managed mills are today folding more yards per operative at less cost.

Oh, well, there is no need of taking up more of your valuable space. I still claim that if any of the youngsters don't believe the overseers and superintendents have been a big factor in the progress the textile industry has shown in the last 25 years—well, just look around a little—JUST LOOK AROUND.

Charlotte Mfg. Co. Has 25th Anniversary

Mutual congratulations are being exchanged between the Charlotte Manufacturing Company, of Charlotte, and the *Textile Bulletin*. Both companies are now celebrating their twenty-fifth anniversaries, both having begun business in June, 1911.

The first plant of the Charlotte Manufacturing Company was established on Templeton avenue. The business now occupies a large, modern plant on Mint street.

Established as the first plant in the South to manufacture card clothing, the company has enjoyed an increasing business with Southern mills. In addition to card clothing, Charlotte Manufacturing Company also makes reeds for cotton, silk and wool fabrics. The plant also produces and repairs expansion combs.

11 Million Yards Cottons To Be Bought By WPA

Washington.—Iit was learned officially that the Works Progress Administration would purchase in the near future approximately 11 million yards of cotton textiles for distribution to work relief rooms at designated points throughout the United States. The goods will be obtained through the Procurement Division, Treasury Department, under the same rules and regulations that have governed previous purchases.

To Textile Bulletin and its' editor, David Clark—

CONGRATULATIONS

and our Sincere Appreciation for the service you have rendered the Southern Textile Industry during the past 25 years.

A SOUTHERN MILL OFFICIAL

The Changes in 25 Years in One-Shuttle Weaving

(*Continued from Page 78*)

Almost from the first the Northrop loom was built with milled loomsides and cross-girts with finished ends to insure a perfectly square frame—a notable development in loom-building at the time.

Just previous to 1911 we started a careful standardization of all parts on the loom to eliminate the filing and fitting of parts in the erecting shop, to improve the operation of new devices and to standardize loom repairs.

This called for a rigid inspection system to insure the rejection of all parts not up to the required standards; the design and construction of hundreds of new jigs to insure accurate drilling and finishing where finishing was then done; the installation of the most up-to-date machinery in the departments where castings were prepared for the erecting shop; and the most intensive research on what parts needed finish to insure good operation of the loom's mechanisms and what parts could be left rough to keep costs down.

It also called for the development in our own shops of less expensive ways of producing finished parts.

In 1914 we introduced cut gears and finished take-up rolls in our various take-ups. The result in the accuracy of the take-up, in the weaving of fabrics true to the number of picks desired and in the better operation of the let-back to prevent thick and thin places was marvelous.

Cut gears came later on the let-off and then cut driving gears. Machine-finish was added on parts where it was found desirable.

Thus gradually the Northrop loom became precision-built along with the steady development of better automatic devices.

This is the story of the development of what we may call the E Family of Northrop looms up to the year 1930.

High Speed Looms

A year or two before, we had become convinced that the next important improvement in looms must be made by increasing the product of the loom through high speed.

The X Model made its bow to the industry at the Southern Textile Show in October, 1930.

It showed an increase of about 30 picks per minute on most weaves over what was done on the looms of the E Family.

It was a new and better loom in every way and had devices that could not be applied to the old models. Its high rate of operation and greater product made all previous models obsolete.

Now the X Family of high speed looms is made up of several models for a wide range of plain and fancy weaves in both cotton and rayon.

What It Means to the Weaver

And what does all this mean to the weaver?

In 1911 a weaver who ran 16 looms spent a considerable part of her time keeping her batteries supplied with bobbins—a purely mechanical job now performed in the larger mills by bobbin girls.

She had to keep a close watch on all of her looms for

many different kinds of weaving defects now automatically taken care of by the loom.

She had to hurry from one loom to another as they stopped for a broken end; and a broken end in those days required her to turn the loom over, push the shuttle into the left hand box, find the broken end—which took considerable time on the average—tie in the end and start the loom.

Matching the pick called for a like number of operations.

Today's 100 loom weaver, because of the greatly reduced number of loom stops, can patrol her set of looms leisurely. When she finds a broken end she was only to pick up the broken end—clearly indicated by an open place in the warp—tie it in and pull on the shipper handle. The loom has stopped with the shuttle in the proper box and everything ready for immediate starting when the piecing up has been done.

The operation is equally simple in matching the pick on a Feeler loom.

This example tells in eloquent brevity the story of the difference between the loom of 25 years ago and the loom of today.

Unsung Heroes of the Textile Industry

(*Continued from Page 76*)

in the primary winding. When winding fine count yarns on the corrugated surface cone the yarn has a tendency to roll to the center of the cone, thus shortening the traverse. As the package is built up this rolling of the yarn or slippage stops, and the package builds to the full traverse, but the damage is done in the primary winding where the yarn rolls to the center. In this process of slipping and rolling to the center the yarn overlaps itself and becomes tangled and when it reaches this point in its delivery to the knitting machine a break in the yarn is almost inevitable.

With this surface construction this slippage or rolling to the center is eliminated, the yarn imbeds itself in the velvet-surface and stays in the exact position that the traverse guide lays it.

Progress in Cone Development

Your 1936 model cone is as different from the 1911 model as your modern streamlined automobile is different from the two-cylinder car of that day. In fact your 1936 model cone, like your 1936 model car, is streamlined. Steramlined not for the purpose of reducing wind resistance, but built of a slight taper; just the correct taper to deliver the yarn to the knitting machine without sloughing and with the least resistance.

A paper cone today does a job that was never expected of a cone a quarter century ago. In those days a paper cone was a flimsy thing. It could not be subjected to moisture or it would crush and spoil the entire package, and it required careful handling to get the wound package in the customer's hands in good condition. Today it is expected to carry the yarn to the knitting machine and deliver the last strand without causing a break. It does more than that in the case of rayon, where it is used in a magazine creel. It delivers the last strand of rayon and then transfers the end to the next cone in a

continuous process. That is the toughest assignment ever given to a paper cone.

Paper Tubes

A comparatively recent development has been developed in the field of the paper tube. A tube has been designed which will stand the process of dyeing yarn and still serve as a carrier after the yarn has been dyed. This is quite an accomplishment, and 20 years ago the idea would have been looked upon with amusement. Liquid and paper, much as water and oil, are not generally considered as fit compansions.

What wonder, then, that the paper carrier might be termed "the unsung hero of the textile industry."

American Dyestuffs From Their Beginning

(*Continued from Page 122*)

any sudden peace and a resumption of importations from Germany.

"Clamor for Dyestuffs"

At the same time, the textile consumers made strong representations in Washington before Congress in the advocation of increased duties on coal-tar dyestuffs. This, of course, was added encouragement toward the creation of a self-contained American dyestuff industry. The clamor of the textile consumers for dyestuffs of almost any description for which they were willing to pay fabulous prices quite naturally attracted scores into the production of dyestuffs. Sulfur browns and sulfur blacks were produced in old iron kettles by the stewing with sodium sulfide of anything from sawdust to leather shavings. Most of them, however, made more ambitious attempts to synthesize dyestuffs, but only the most elementary dyestuffs were attempted mainly due to the lack of dyestuff chemical knowledge and the realization that the more complex dyestuffs were still protected by foreign patents. It is interesting to note that during 1917 some eighty-one establishments entered the dyestuff production field, and while their production for that year was practically the same in quantity as the annual importations before the war the range of colors was exceedingly limited.

During 1917, however, small progress was made in the production of indigo and all of the Alizarin or vat dyestuffs derived from Carbazol and Anthracene. The result was that the dyestuff needs of the woolen mills were satisfied much better than the requirements of cotton finishers, fast dyestuffs in all the primary colors suitable for wool being available by the end of the year in adequate quantities. This tardiness of development, as has already been stated, was due not only to the lack of chemical and manufacturing skill but to the fact that the foreign owned patents blocked the way toward commercial exploitation. This condition continued until the passage of the Trading with the Enemy Act on October 6, 1917, after which date the Federal Trade Commission, under the authority of this Act, was empowered to issue licenses on patents owned by enemy aliens. Immediately several companies applied for and secured licenses to manufacture the many vat dyestuffs for cotton, as these dyestuffs represented the fastest known class of cotton dyestuffs developed up until that time, and for that matter still are.

Foreign Patents Siezed

The future of the American dyestuff industry was made even more secure shortly thereafter through the seizure by the Alien Property Custodian of all patents held in the name of alien enemy citizens or corporations, and shortly afterwards the Chemical Foundation was organized for the purpose of securing titles to these patents from the Alien Property Custodian, so that their control might be used for the benefit of the industry as a whole instead of primarily for the benefit of any possible future American or foreign purchaser. Some forty-five hundred patents on chemical products, processes and machinery were involved in this purchase and the price paid was $250,000. This far-sighted move on the part of the Government laid the firm foundation for future development of the industry, eliminating the throttle hold which the foreign patent owners would have placed upon the domestic industry when hostilities ceased. While this discussion is being confined to dyestuffs, it could incidentally be noted that many patents on important present day medicinals were also included in this group.

Not the least of the industry's problems were their plans for tariff protection, particularly after the signing of the Armistice on November 11, 1918. A return of foreign competition through importations was certain to occur, and with the investment of an estimated $100,000,000, by that time in the domestic industry a definite degree of protection was necessary. We all remember the various means taken by the Government to continue its watchful care over its newest of industries through the licensing plan of the War Trade Board, the functions of which were taken over by the Dye and Chemical Section of the Treasury Department after peace was signed with Germany. We also remember the first shipments into this country of German reparation dyestuffs, the variety and quantities of which were carefully controlled so that they would in no way conflict with products manufactured by the American industry.

Precarious Days

The period 1919 to the end of 1922, however, was a precarious one in the life of the industry, inasmuch as the German dye plants were rapidly rehabilitating themselves and all manner of political pressure was being brought to bear through their emissaries here to again open this market for their output. Happily, Congress realized the national defense characteristics of the industry, so that its protection was continued by successive extensions of the so-called embargo until the passage of the Tariff Act of 1922. The American valuation method of tariff protection was applied to a domestic industry for the first time in this Act. It has proven to be remarkably effective in fostering the development of more and more complex dyestuffs, while at the same time exerting pressure on domestic producers to lower their prices and thereby enjoy a greater degree of Tariff protection. Under the provisions of the dyestuff and coal-tar paragraphs of the 1922 Tariff Act, which were continued in the Tariff Act of 1930, full opportunity is given to importers to secure at practically foreign invoice prices those dyestuffs of which there are no similar domestic types. Thus the American textile industry is unhampered in its choice of dyestuffs and is further assured of no reoccurrence o

the acute dyestuff shortage which occurred when they were solely dependent on foreign sources of supply.

It is an interesting fact that the United States Tariff Commission has recorded detailed yearly information on the domestic industry's production and sale of dyestuffs and other synthetic organic chemicals, and it might be of interest to read a part of the last published annual Census of Dyestuffs for the year 1934, to show the present day status of the industry.

"There were 43 producers of dyes in 1934, reporting an output of 87,177,612 pounds, or 14 per cent less than in 1933 and 7 per cent less than the average for the period 1925-30. A corresponding decrease in sales volume and a slight increase in sales value of dyes is shown. The unit value of sales of all dyes increased to $0.51 per pound as compared with $0.44 per pound in 1933. The decrease in volume and the increase in the unit value of sales are due principally to decreased sales of the low-priced tonnage products—indigo and sulfur black. * * *

"The apparent consumption (sales plus imports, less exports) of dyes in the United States in 1934 was 69,-759,559 pounds, of which 95.1 per cent was supplied by domestic producers, and the remaining 4.9 per cent was imported.

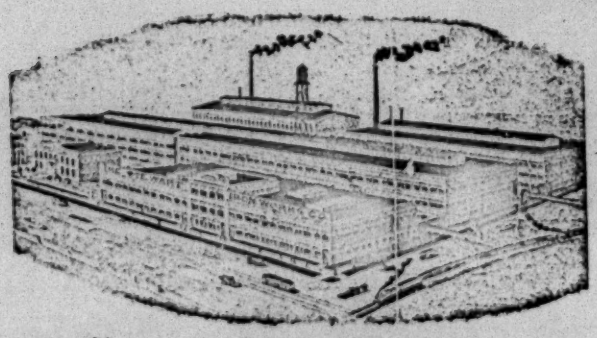
"In value, imports (invoice value) supplied 12 per cent of the apparent consumption of dyes in 1934. Adding to the value of the imported dyes the amount of the duties paid and an allowance of 15 per cent for expenses and profits, imports of dyes supplied about 20 per cent of the domestic consumption by value in 1934."

What the future holds for the industry remains to be seen, but judged from the tremendous progress it has achieved in the few years of its existence some truly remarkable developments are ahead.

Stewart Iron Works Celebrates 50th Year

The Stewart Iron Works Company, Cincinnati, Ohio, celebrate their 50th anniversary in the same year that the Textile Bulletin reaches its 25th anniversary. anniversary.

From a small beginning in 1886, when R. C. Stewart and his brother, W. A. Stewart began the manufacture



Plant of Stewart Iron Works Company

of iron and wire products in Wichita, Kansas, the business and manufacturing facilities of the company have shown steady growth. The original small shop was moved to Cincinnati in 1894 and within three years the business had grown so that it was necessary to find larger quarters.

However, the continued growth of the company forced it to again seek increased facilities and in 1903, the present large iron works was built in Covington, Ky., just across the river from Cincinnati. The present plant has 350,000 square feet of floor space and has modern equipment throughout for the fabricating steel products.

The company is best known to Southern mills as manufacturers of steel picket fencing, being one of the largest producers of these products. They also manufacture wire mesh partitions, window guards, pipe railing, folding gates, metal folding chairs and a diversified line of steel specialties.

It is interesting to note that the Stewart Iron Works were recently given contract for replacement of all prison work at the U. S. Penitentiary at Alcatraz Island, Calif.

In celebrating its golden anniversary the Stewart Iron Works continues under the guidance of its founder, R. C. Stewart, who has for his lieutenants a son, a grandson, brothers, and nephews, all grown to maturity in the business.

Larger Sales If No Tax Passed

Boston, Mass.—While conditions at the moment are more satisfactory than a year ago, they are nevertheless affected by the possibility of further substitute taxes on cotton goods to replace the processing taxes recently declared unconstitutional by the Supreme Court, comments Alfred E. Colby, president of Pacific Mills, in connection with the company's annual financial report just received by stockholders.

Mr. Colby states that "if no substitute taxes are placed upon cotton, it should in the long run prove helpful in obtaining greater distribution." He adds that the worsted business has generally been moderately profitable, with cost of raw wool rising appreciably."

In reporting a net loss of $457,771 after all charges, including markdown of inventory of $40,092, for the year ended December 28, 1935, Mr. Colby reports that the company operated at a profit in the second half, with all of the improvement coming in the last quarter. Comparison of the annual report for the semi-annual statement indicates the company to have made a net profit of $117,040 in the second six months. For 1934, Pacific Mills sustained a net loss of $521,091, after inventory markdown of $636,762.

Net sales of Pacific Mills increased 25 per cent to $51,035,089 from $40,732,302 in 1934.

At the end of the year, the company had current assets of $23,621,561 against current liabilities of $10,162,881, leaving net working capital of current assets over current liabilities of $13,458,680 against an excess of current assets of $13,469,025 at the close of 1934.

Slater Gets Patent On Spun Rayon Imitation Linen

A U. S. patent No. 2,031,209 has just been granted to Harry H. Burton, assignor to Slater Mills, Inc., covering a construction of spun rayon fabric, produced to imitate a linen fabric.

The patent literature describes "an imitation linen fabric woven from a thread made from spun rayon and cotton fibers and having haphazard irregularities similar to those characteristic of natural linen thread."

Mill News Items

MONTGOMERY, ALA.—Closing of the Bradford cotton mills here recently was due to business conditions, according to H. B. Dowell, manager, who said that the company is transferring as many of the 200 operatives as possible to other textile plants.

"Business conditions do not warrant further operation of the mill," Mr. Dowell said. He did not say whether the closing was permanent or temporary. The company's mill at Prattville will continue in operation. For some time Mr. Dowell has been manager of both plants.

KNOXVILLE, TENN.—The Aronsohn & Hirschfeld Silk Mill in Morristown has been purchased by the Minjoy Mills Corporation, newly organized at Morristown. The new company will continue to operate the mill and plans to erect an addition large enough to take care of machinery from a mill which the company controls in New Jersey.

Financing necessary for the expansio nhas already been promised, according to J. S. Germon, who with William Lasnick of Paterson, N. J., will have active management of the mill. Mr. Lasnick will move from New Jersey to Morristown. He is secretary.

YORK, S. C.—The York Yarn Mills, which will be operated by a group of York business men who recently bought the closed Travora cotton mills, will begin work at once, according to E. B. Lowry, president, secretary and treasurer of the new company. The directors are Mr. Lowry, who is a cotton buyer here; C. J. Youngblood, president of the Bank of York; J. Forrest Smith, furniture dealer, and Dave Cameron, farmer and large peach grower. J. J. Farris will be superintendent of the plant.

The Travora mills were bought from W. Bedford Moore, trustee, of Columbia. They have been shut down since April of last year.

Parties are negotiating with Mr. Moore, it is understood for the purchase of the closed Neely mills here, of which he is also trustee. The Neely mills, too, have been closed since last April.

TRYON, N. C.—F. P. Bacon, founder and owner of the Southern Mercerizing Co., from 1909 to 1921, sold his interests in the business Monday to the China Grove Cotton Mill Co., of China Grove, it was announced here.

W. C. Ward, who joined Mr. Bacon in partnership in 1921, retains his interest in the business and will be in active charge of the mill as vice president and treasurer. John H. Rutledge of China Grove succeeds Mr. Bacon as president, and D. S. Blois of Tryon, will hold the office of secretary.

The board of directors will consist of John H. Rutledge, W. C. Ward, J. C. Weaver of China Grove, and A. L. Brown, of Kannapolis.

The new company will operate as the Southern Mercerizing Co., with paid in capital stock of $200,000. The old plant and cottages will be remodeled, and new additions are being planned, including offices.

New machinery is already being installed to increase the present capacity from 1,000,000 to 5,000,000 pounds, which will require the addition of from 50 to 75 more employees.

Mill News Items

LANGLEY S. C.—The Langley Cotton Mills Co., of Aiken, S. C., was put into receivership by Judge Frank K. Myers in U. S. District Court in Charleston. On petition of Mercantile Trust Co., of Baltimore, as trustee for the holders of $470,000 face value of a $600,000 bond issue maturing Nov. 1, 1934, Judge Myers appointed William E. Bush, of Augusta, Ga., and P. F. Henderson, of Aiken, receivers, setting their bond at $10,000.

The petitioners allege that the mill company, which, it is averred, is owned by the Aiken Mills, of Aiken, has not complied with sinking fund provisions of an indenture agreement and owes $15,000 in state and county taxes and for this reason on Feb. 19 it declared the entire outstanding issue of bonds due and payable and petitioned for the receivership.

On petition of the receivers, Judge Myers authorized them to enter into an agreement with the Bath Mills, Inc., or its parent company, United Merchants & Manufacturers, Inc., to continue operation of a small dye house which is a part of the Langley Mills. In return, the operator of the dye house is to maintain insurance in excess of $500,000, maintain a watchman and keep the property warm up to June 1, 1936.

Consolidated Textile Corp. Time Extended

Because negotiations to date have not resulted in a promise of a loan of $1,750,000 sought from the RFC by the Consolidated Textile Corporation, 88 Worth street, to aid in its reorganization under Section 77-B of the Bankruptcy Act, Isidor J. Kresel, counsel to the company, asked U. S. District Judge Goddard to extend the time for submission of the plan from March 15th to April 30th. Since all creditors, stockholders and bondholders represented at the meeting agreed to this proposal, Judge Goddard said he would sign the order.

At the same time the period for filing claims was extended to March 15th.

Questioned by Judge Goddard as to the prospects of the loan being granted, counsel to the debtor replied that he could make no definite statement beyond saying that an officer of the company and its counsel had conferred with a representative of the RFC and that it is at present hoped that at least a portion of the requested loan will be made available shortly, with more advances to follow later as the company resumes production on a heavier scale than it is operating on now.

Four weeks of operation since the filing of the petition show a profit of $8,873, after making provision for a $2,043 tax charge, and for depreciation amounting to $3,578. If the part of the business now in operation were closed down the cost of maintenance during that period would have been $7,228, counsel pointed out.

The revolving fund of $50,000 advanced to the business by L. F. Dommerich & Co., factors, has provided enough money to assure continuance for two or three months to come, it was said. Mr. Kresel likewise obtained the consent of the court to postponement of the annual meeting, which normally is held the second Monday in April, on the ground that holding that meeting, with its consequent issuance of notices and statements, would entail an estimated expenditure of $5,600. Present officers, according to the corporate charter, will continue

Annual Rayon Statistical Survey

Compiled by Textile Economics Bureau, Inc.

Published in Textile Organon

OUR annual statistical supplement this year has been enlarged to include important, general non-rayon items which we have found to be of interest and use to those in the textile industry. These data are presented in the following pages and are intended to serve as tables of handy reference, which may be filled in currecently from material regularly published in the *Organon*.

It is believed that the description accompanying each table will outline not only the source of the data, but also the exact coverage and meaning of the partciular series. If this is not the case, we will welcome inquiries from our readers.

The rayon part of this survey covers rayon filament yarns only; it does not cover any other rayon items such as staple fiber, waste, filaments (horsehair), or bands and strips. No published data is available on these items.

Our old grouping of data according to viscose, acetate and other (cuprammonium and nitrocellulose) processes had to be changed to the new classification of viscose-cuprammonium-nitrocelluose yarns and acetate yarn because the discontinuance of nitrocellulose yarn production in 1934 would result in showing the operations of individual companies. Nor will true results be obtained by attempting to take differences between our old and new series, because we have made a number of changes in all series in view of data received by us during the year.

World Rayon Production in 1935

Our world rayon production study for 1935 will be made during the Spring and published in our June issue as usual. But so many requests for this data have been received, that it seems worth while to estimate here that 1935 world rayon yarn production probably will be in the neighborhood of 950,000,000 pounds as compared with 775,000,000 pounds in 1934 or an increase of 22 per cent. This data does not include other rayon products such as staple fiber, waste, visca, etc.

Beside the United States, all key rayon-producing countries will show very substantial increases, especially Japan, Great Britain, Germany and Italy. An early report on Japanese production, for example, shows 215,000,000 pounds produced in 1935 as against 153,000,000 pounds in 1934, or an increase of 40 per cent; and this record was made with a sizeable part of the installed capacity sealed to prevent over-production!

As noted, we propose to issue our regular world production data in June after records are complete and the proper segregations have been made as between rayon yarn and rayon staple fiber especially.

U. S. Rayon Production and Consumption Reaches New High Levels

Rayon yarn production in the United States during 1935 reached a new high total of 256,659,000 pounds compared with 208,496,000 pounds in 1934 or an increase of 23 per cent. The production of viscose plus cuprammonium yarn amounted to 200,800,000 pounds, an increase of 18 per cent from the corresponding figure of 170,482,000 pounds (including some nitrocellulose yarn) in 1934. Acetate yarn production in 1935 is given as 55,859,000 pounds which corresponds to a 1934 production of 38,014,000 pounds or an increase of 47 per cent.

Viscose plus cuprammonium production accounted for 78.2 per cent of the 1935 total and acetate for 21.8 per cent of this total. At the end of 1935 there were 12 producers of yarn by the viscose process (18 plants), 4 producers of acetate process yarn (4 plants), and 2 producers of cuprammonium process yarn (2 plants). This makes a total of 16 producers and 24 plants operating at the end of 1935, after eliminating duplications.

Domestic consumption of rayon during 1935 totaled 251,722,000 pounds compared with 194,808,000 pounds in 1934 or an increase of 29 per cent. This domestic consumption represents the sum of producers' domestic yarn shipments and imports of rayon yarn for consumption.

Year-end 1935 stocks increased by 24 million pounds over the corresponding 1934 figure. With the large increase in shipments and this small increase in stocks, however, it may be said that these ending 1935 stocks actually indicated a relative decline from their already reasonable 1934 level.

Domestic Rayon Shipments By Trades

Domestic shipments of rayon yarn by trades is shown in the table on page 18. The non-acetate yarn includes yarn made by the viscose and cuprammonium processes and, before 1934, the nitrocellulose process. Original shipments of yarn to converters and jobbers have been reallocated to the trades shown on the basis of a special study made by us for this purpose.

There was some come-back in rayon shipments to the hosiery industry in 1935, probably as a result of higher silk prices. It is expected that this increase may well be carried on into 1936, especially in the seamless field.

Shipments of yarn to underwear, outerwear and other knit goods manufacturers (except hosiery) showed a sizeable increase from 1934 to 1935 both in the visecose-cuprammonium and the acetate classifications. The importance of rayon in knit outerwear, and especially in the hand-knitting and novelty knitting yarns, thus continues to assert itself. It is estimated that about 75 per cent of this yarn, or approximately 35,000,000 pounds, went into the production of circular and flat knit underwear during 1935.

Broad goods weavers continued to provide the main outlet for rayon in 1935, their takings being 67 per cent

(*Continued on Page 152*)

"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

I note that you are celebrating the 25th anniversary of the Textile Bulletin and with it the 25th anniversary of David Clark as its Editor.

During the 25 years of its existence the Textile Bulletin through David Clark has fought valiantly for the best interests of the textile industry and has fought not only for issues which were apparent at the time but has had the vision to look ahead and to protect our interest from future trouble.

Please accept my heartiest congratulations on your 25th anniversary and may this be just the beginning of the good work you have undertaken.—*Samuel L. Hayes, Southern Manager, Ciba Co., Charlotte, N. C.*

* * *

It is with pleasure to know of the 25th anniversary of the Textile Bulletin. Please accept my congratulations upon the long and useful career of this publication. I sincerely hope that I shall have the opportunity of congratulating you upon the end of another 25 years.—*Robert West, Pres. Riverside and Dan River Cotton Mills, Danville, Va.*

* * *

I understand that the Textile Bulletin is celebrating its 25th anniversary.

This is to express my personal appreciation of the worth-while and constructive influence you have had in the industry.—*Cason J. Calloway, Pres., Calloway Mills, LaGrange, Ga.*

* * *

It has just come to my attention that March 2, 1936, will mark the 25th anniversary of the Textile Bulletin, and that you are planning to issue a silver anniversary number on that date.

On your 25th anniversary I desire to extend to you my congratulations, and wish for you many further years of successful effort.

Looking backward, I feel that you have conducted a high toned publication during all those years, and have rendered a distinct and valuable service to the textile industry of the entire country, and the South in particular.—*P. H. Hanes, Pres., P. H. Hanes Knitting Co., Winston-Salem, N. C.*

* * *

It has come to my attention that the Textile Bulletin is celebrating its 25th anniversary this week. During all of these years I have been a reader of the Bulletin and have always been impressed with it's and Mr. Clark's efforts to promote and protect the best interests of the textile industry.

We wish to heartily congratulate the Bulletin and Mr. Clark for the service that they have rendered the textile industry during the past 25 years.—*Jno H. Spencer, Mgr., Barber-Colman Co., Greenville, S. C.*

* * *

I note with sincere interest that the Textile Bulletin will celebrate its 25th anniversary on March 5th. The writer has taken the Bulletin almost from its first edition to the present with pleasure and profit, and consider it a leader in its special field of action and I wish to take advantage of this opportunity to congratulate the Editor and management on the fine way in which the Textile Bulletin has upheld the interest of our industry, and may its weekly visits continue down through the years to come.—*T. M. McNeill, Supt., Monarch Mills, Union, S. C.*

* * *

May I add a word of congratulation and appreciation to the many such messages I know you will receive on the occasion of your 25th anniversary.

It happens that I have been identified with the industry here in the South since your journal was first established, and I have watched with much interest and approval your efforts and activities.

In my opinion, the progress and growth of the textile industry here in the South is due in no small measure to your fearless loyalty and support, and I sincerely wish for you many more years of success and usefulness.—*L. W. Thomason, Southern Manager, N. Y. and N. J. Lubricant Co., Charlotte, N. C.*

* * *

Allow me to extend my heartiest congratulations to David Clark on the 25th anniversary as editor of the Textile Bulletin.

The up-to-date news items which appear every week in your paper, and the other articles of timely and deep interest to our industry are only exceeded by your own progressiveness and vigor in defending this industry from influences which could only injure and throttle its growth.

I sincerely hope that your virile pen will continue its activities for many years to come. The fearless manner in which you handle these problems is admired by countless friends.

Again I offer my congratulations.—*Wm. B. Hodge, Vice-Pres., Parks-Cramer Co., Charlotte, N. C.*

* * *

Please allow me to congratulate you on this the 25th anniversary of the Textile Bulletin.

The Bulletin has certainly lived up to its slogan by giving real service to the Southern mills.

I would also congratulate your editor, Mr. David Clark, and his assistant, Mr. Hill, for this unswerving loyalty to the textile industry through the years.—*M. E. Garrison, Supt., Glenwood Cotton Mills, Easley, S. C.*

* * *

I wish to extend congratulations to the Textile Bulletin upon its 25th birthday.

This is the completion of 25 years of real service to the textile industry in the South. The Bulletin has its own particular place in the industrial picture, and all persons connected with the textile industry should be thankful for its existence.—*Culver Batson, Mgr., Consolidated Textile Corp., Lynchburg, Va.*

* * *

I wish to congratulate David Clark for his quarter of a century's perseverence and grit in building up an organ like the Textile Bulletin.

The fearless and unbiased editorials have been of great benefit to the textile industry to such an extent that it cannot be measured in dollars and cents. I look forward every week to the reading of this magazine, as the information contained therein is most interesting and educational. Particularly I wish to extend to Mr. Clark my sincere congratulations on the 25th anniversary as editor and wish him continued success.—*J. W. Rimmer, H and B American Machine Co., Charlotte, N. C.*

It Happened The Day Textile Bulletin Was Born

Items From The Days News March 2, 1911

WHILE the contents of this issue are devoted to a review of the textile developments of the past 25 years, it is interesting to turn aside for a moment to see what was going on outside the mills in March, 1911.

The following items, selected from the day's news just 25 years ago, are of interest while we are taking a backward glance.

POLITICAL

Both Houses of Congress were in session all night, considering financial legislation. (There were no billion dollar appropriations.) President Taft decided to call a special session.

Cole Blease was Governor of South Carolina.

MARKETS

Trading in cotton goods was limited to small quantities for early use and mills were inclined to sell spots and not contracts at current prices.

Cotton, after making a new high record for the movement on March contracts, turned easier under realizing. Charlotte market quotation, 14c.

STOCKS

Sharp declines among the stocks more commonly traded resulted from heavy selling on the stock exchange. The prominent issues lost from 1 to 3 points. Some closing prices: Allis-Chalmers pfd., 30; American Locomotive, 36¼; American Woolen, 33½; Bethlehem Steel, 30; Corn Products, 13¼; G. E., 149¾; U. S. Steel, 75.

LOCAL PRODUCE

Hens, 12; Spring chickens, 14; butter 15; eggs, 15.

SPORTS

Pitchers Bender, Plank, Coombs, and Infielders Davis, Collins, Baker and Barry of the world champion Philadelphia American League baseball team, left for Savannah, Ga., to enter Spring training.

Tyrus Raymond Cobb became part owner of the Augusta (Ga.) Chronicle, one of the oldest newspapers in America.

WEATHER FORECAST

Rain or snow.

STYLES

Corset Covers were featured by a Charlotte merchant at 19c and 25c.

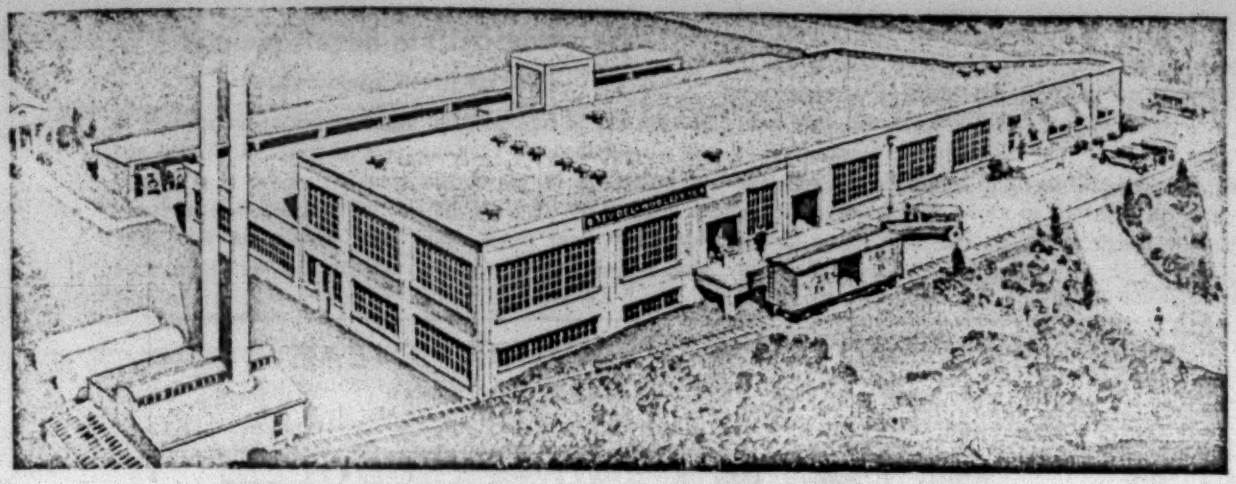
Mae West curves, long dresses and pompadours were the vogue among the ladies. It was the day of tall "standing" collars and long single-breasted coats for the men. The upper classmen at Cornell found it necessary to prohibit freshmen and sophomores from wearing moustaches.

MISCELLANEOUS

Maxwell Automobiles were offered at $1,400; "speedy and classy, 4 cylinders, 30 h.p.; gas lamps evtra.

No auto accidents were reported, despite the fact that a quarter page advertisement in the Charlotte Observer featured Jefferson Club Rye at $3.50 per gal. and Holland Gin at $3.00 per gal.

New York Sun—A North Carolina cotton manufacturer found at the Waldorf yesterday was actually wearing a smile and confessed to being engaged in making money, which most Southern cotton manufacturers who visit New York these days deny. The visitor was F. S. Wilcox of Tryon, N. C.



NEW ADDITIONS DESIGNED BY ROBERT & CO., ARCHITECTS AND ENGINEERS, ATLANTA, GA.

To serve you still better—

To continue to deserve your confidence and be prepared for further expansion and increased efficiency, we are for the third time in the last twelve years, obliged by the uninterrupted growth of our business, to considerably increase the size and capacity of our plant.

This is due to the demand of Textile manufacturers for SEYCO and SEYCO Service. Goods of exceptional quality always are in ever increasing and insistent demand, in spite of depressions.

The forces of our laboratory, plant, office, as well as our sales force and our demonstrators, all are continually reminded of the motto: "He profits most who serves best!"

Our entire organization is constantly working to improve our products. Our new modern plant pictured above is one step in this direction, enabling us to serve the Southern mills with the greatest efficiency.

To you, our friends who have made this possible, we offer our sincere thanks.

"A COMPANY IS KNOWN BY THE CUSTOMERS IT KEEPS!"

SEYCO

Seydel-Woolley Co.

748 Rice St. **Atlanta, Ga.**

WARP SIZINGS—SOFTENERS—PENETRANTS

TEXTILE CHEMICALS

Annual Rayon Statistical Survey

(*Continued from Page 146*)

of the viscose-cuprammonium business and 86 per cent of the acetate business, an average of 71 per cent for the industry as a whole. The consumption of all rayon in broad woven goods thus totaled 178,900,000 pounds in 1935. If we assume that rayon cloth may "average" something over 4 yards per pound of yarn ,then it may be stated that the equivalent of 800,000,000 yards of rayon woven goods, or 13,250,000 60-yard pieces, were manufactured during the year, or an increase of 40 per cent over the 575,000,000 yards of 1934.

Summarized, it may be said that the usage of rayon increased in all major fields during the year, but that the main increases took place in the weaving industry which, it will be recalled, is a relatively newer volume field than either hosiery or underwear.

BASIC ANNUAL U.S. RAYON YARN DATA

UNITS ARE THOUSANDS OF POUNDS AND *PERCENT*

	(1)*		(2)		(3)		(4)**	(5)***	(6)	(7)	(8)	(9)****
Year	DOMESTIC PRODUCTION Viscose Cupra & Nitro		Acetate		Total		Total Domestic Shipments	Change in Domestic Stocks	Imports for Consumption	Exports	Import Balance (#6-#7)	Domestic Consumption
1911	364	*100*	- -	- -	364	*100*	334	+ 30	1,800		1,800	2,134
1912	1,111	*100*	- -	- -	1,111	*100*	1,111	- - -	1,750		1,750	2,861
1913	1,816	*100*	- -	- -	1,816	*100*	1,566	+ 250	2,430		2,430	3,996
1914	2,422	*100*	- -	- -	2,422	*100*	2,442	- 20	2,740		2,740	5,182
1915	4,334	*100*	- -	- -	4,334	*100*	4,109	+ 225	2,450		2,450	6,559
1916	5,778	*100*	- -	- -	5,778	*100*	5,743	+ 35	900		900	6,643
1917	6,544	*100*	- -	- -	6,544	*100*	6,694	- 150	370		370	7,094
1918	5,846	*100*	- -	- -	5,846	*100*	4,596	+ 1,250	180		180	4,776
1919	8,228	*99.4*	50	*0.6*	8,278	*100*	8,223	+ 55	1,072		1,072	9,295
1920	10,109	*98.8*	120	*1.2*	10,229	*100*	7,939	+ 2,230	1,480		1,480	9,479
1921	14,871	*99.2*	120	*0.8*	14,991	*100*	16,475	- 1,484	3,276		3,276	19,751
1922	23,580	*99.5*	120	*0.5*	23,700	*100*	22,545	+ 1,155	2,116		2,116	24,661
1923	34,374	*99.7*	120	*0.3*	34,494	*100*	29,528	+ 4,966	3,029		3,029	32,557
1924	36,208	*99.7*	120	*0.3*	36,328	*100*	40,289	- 3,961	1,954		1,954	42,243
1925	49,429	*96.8*	1,620	*3.2*	51,049	*100*	52,836	- 1,935	5,441	148	5,293	58,277
1926	60,073	*95.8*	2,620	*4.2*	62,693	*100*	51,285	+11,008	9,345	400	8,945	60,230
1927	70,408	*93.2*	5,147	*6.8*	75,555	*100*	85,020	- 9,866	15,028	401	14,627	100,049
1928	91,232	*93.8*	6,000	*6.2*	97,232	*100*	87,964	+ 9,052	12,117	198	11,921	100,101
1929	112,954	*93.0*	8,445	*7.0*	121,399	*100*	116,403	+ 4,767	15,039	223	14,816	131,448
1930	117,543	*92.3*	9,790	*7.7*	127,333	*100*	111,627	+15,361	6,341	345	5,996	117,968
1931	135,249	*89.6*	15,630	*10.4*	150,879	*100*	155,556	- 4,991	1,804	314	1,490	157,360
1932	116,379	*86.4*	18,291	*13.6*	134,670	*100*	151,944	-17,827	197	653	- 456	152,041
1933	172,472	*80.8*	41,026	*19.2*	213,498	*100*	211,082	+ 1,308	984	1,110	- 176	212,018
1934	170,482	*81.8*	38,014	*18.2*	208,496	*100*	194,731	+11,256	77	2,509	- 2,432	194,809
1935	200,800	*78.2*	55,859	*21.8*	256,659	*100*	251,700	+ 2,745	est 22	est 2,215	- 2,193	251,722

SOURCE: Textile Economics Bureau, Inc. as published in the RAYON ORGANON.

This survey covers all commercial rayon yarn made in the United States at any time. The data on acetate process rayon is partially estimated throughout the report. All data shown in this report is based on an 100% sample of the subject covered in each case.

*Since 1934, production of filament yarns by the viscose and cuprammonium processes only, nitrocellulose yarn production having been discontinued in 1934. These production data are combined so as to avoid disclosure of individual company operations.

**Shipments by American producers to domestic outlets, American yarn shipped abroad having been eliminated here. This column is designed as the base for the domestic distribution by trades data on page 19.

***Change in stocks of all yarns held by producers from the end of the previous year to the end of the current year in each case.

****Domestic consumption is calculated as the sum of domestic shipments by American producers (Column 4) plus imports of yarn for consumption (Column 6).

Style Notes

Taffeta for Lining

Taffeta linings are important in the spring coat field. These are being used in patterned tweed topcoats for women.

Natural Shade Smart

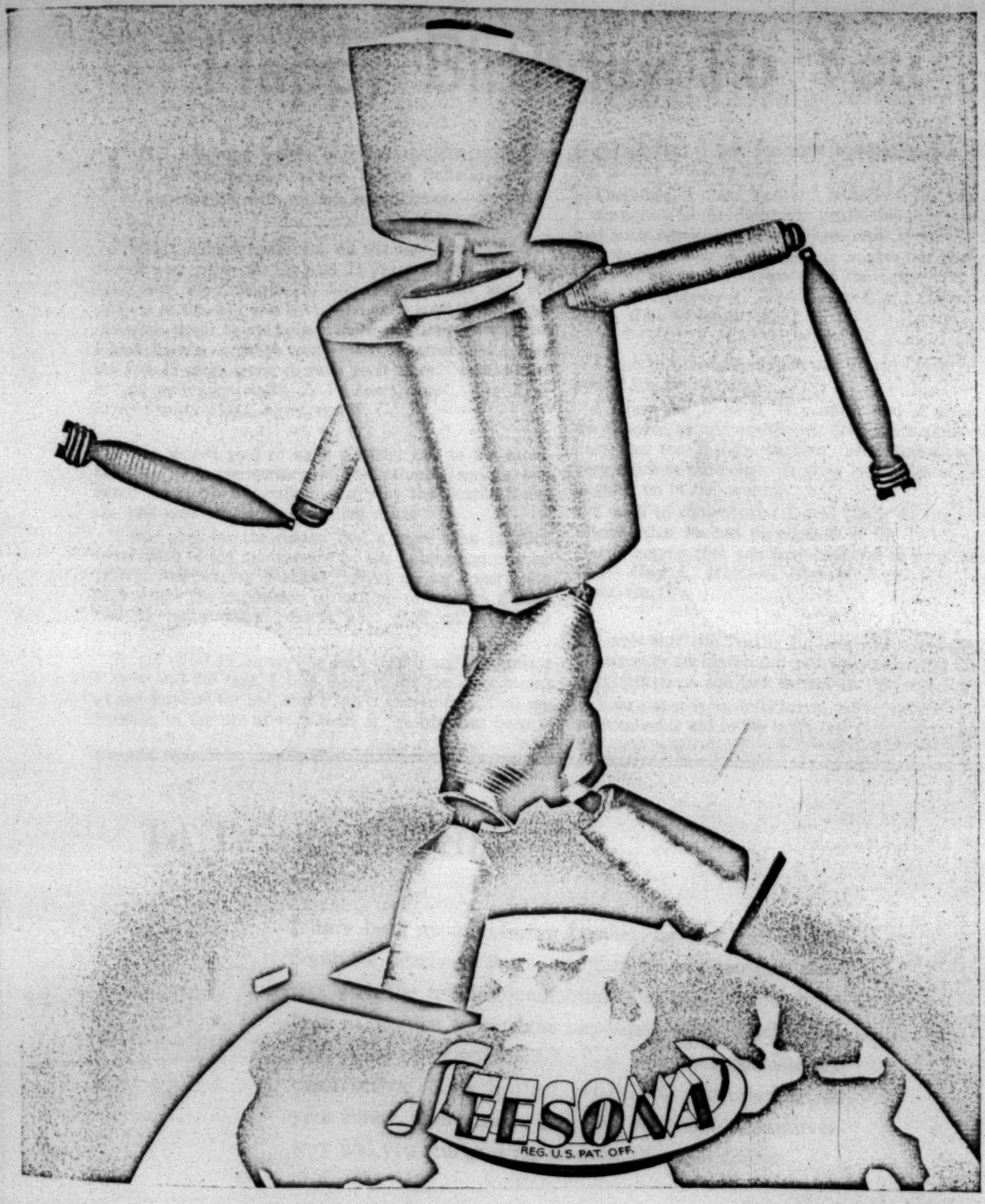
Linen houses report that natural is one of the leading shades in dress goods at the present time. In the volume field, pastels are most popular with buyers favoring aqua.

Many Novelty Chiffons

Novelty chiffons are expected to rival staple flat ones for the coming summer. Heavily crinkled types are important as are cross-barred, striped and cire dotted styles.

New Open Work Crepes

Rayon crepes with mossy openwork motifs are being shown in Paris. These motifs are of the drawn thread type.



"Happy Birthday To You"

THE following letters of congratulation upon the 25th Anniversary of the Textile Bulletin are acknowledged with sincere appreciation.—Editor.

I wish to congratulate you on the way you have conducted your paper for the past 25 years. I feel that you have been very helpful to both management and operatives in the way you have conducted your paper. Your editorials stand out as being fair to all parties concerned. I have been a constant reader of your paper and I wish for you 25 more years of such good work. Best wishes to you and your staff.—*J. Y. Jones, Supt., The Newberry Cotton Mills, Newberry, S. C.*

* * *

I was indeed glad to have a friend call to my attention the 25th anniversary of the valuable service rendered the Southern textile industry by the Textile Bulletin, and yourself, as its crusading editor.

I was glad for the reason that a more than justified recognition of the anniversary by the publication of your "Silver Anniversary Number," gives me an opportunity to attempt the expression in writing of feelings I have had for many years towards your good self and your good paper.

In my effort to convey the high regard and admiration I have had for you, I find mere words the only means at my disposal for use, and I regret exceedingly, that my training in the use of such tools as "words" has been so neglected that I am seriously handicapped in painting the picture I would like.

Therefore, I must content myself by simply saying I congratulate the Southern textile industry on having had such advocacy for 25 years, and to extend to you and your associates my sincere wishes for many more years of successful endeavor in the cause you have so ably represented.—*L. B. Gibson, Supt., Union Buffalo Mills, Co., Fairmont, S. C.*

* * *

I wish to congratulate you and David Clark, editor, on your 25th anniversary.

I enjoy the Bulletin very much and it gives me all the changes, as well as different discussions along different lines and too I enjoy reading the editorials which are very much to the point. It gives us an idea of just what is going on in the country.

I wish to congratulate David Clark on the wonderful interest that he has manifested in the textile industry. Here's hoping that you may continue in your wonderful way.—*Guy L. Melchor, Howard Bros. Mfg. Co., Atlanta, Ga.*

* * *

I note that the Textile Bulletin will celebrate its 25th anniversary on March 5th and want to extend my sincere congratulations and best wishes on this occasion.

Your paper is an institution and its policies have been an invaluable aid to the mills and their employees during

the years of its existence. It has been a campaign for the mills when one was needed. It has done much for the operating executives and in so doing has helped to provide the mills with better second hands, overseers and superintendents. It has always been the true friend of the rank and file of mill operatives.—*Frank S. Dennis, Supt., Granite Falls Mfg. Co., Granite Cordage Co., Granite Falls, S. C.*

* * *

I was a "charter member" among the first subscribers of the Textile Bulletin. From the first issue I have read it with interest each week and with pleasure and benefit for myself. Mr. Clark has done an exceedingly fine job and I am proud to be numbered among the friends who have taken his paper since the first issue.

My sincere congratulations to him and to his staff upon reaching the 25th anniversary.—*J. O. Edwards, Gossett Machine Co., Gastonia, N. C.*

* * *

Newspaper Fashion Service Sells 500,000 Yards of Cotton Goods

As part of the Cotton-Textile Institute fashion promotion activities, the New Uses Section continues to collaborate with the important commercial pattern companies in the selection of materials and designing of styles.

A recent check on the acceptance of cotton styles recently released through one service, reveals that more than 50,000 patterns of one model and between 35,000 and 40,000 patterns on each of two other models—whose photographs were published in about 150 daily newspapers, with an aggregate circulation in excess of 5,000,000 —were purchased by women readers.

Cotton fabrics are given in every case exclusive mention as the materials to buy in making these pattern dresses.

Taking into account the yardage required for each dress made up from these patterns, more than 500,000 yards of cotton goods have probably been sold at retail, as a direct result of this fashion publicity.

Experiments in Use of Cotton in Road Making

Washington.—The deficiency appropriation bill which passed recently carried an amendment offered by Senator Byrnes which will permit the Secretary of Agriculture to conduct experiments in the use of cotton in the curing of concrete roads and cotton binder for bituminous surfaced roads.

The Senator said that experiments in South Carolina have proved the feasibility of using cotton for these purposes. However, it is now necessary to have such experiments conducted in othr sections of the country to convince the State high officials that the use of cotton in curing concrete and in the construction of roads will so prolong the life of a road as to justify the expense.

"If the highway officials of the various States can be convinced of the desirability of cotton for this purpose," he said, "it will increase the consumption by 1 million bales a year."

Under the experiment, it is proposed to purchase and furnish to State highway departments and counties and municipalities sufficient mats for ample demonstration, the allotment to States being made in accordance with the miles of highway and streets. A maximum allotment will be made to each State so that, in all, the maximum expense to the Government will not exceed $480,000.

1936 CLASSIFICATION OF SOUTHERN MILLS

In the table given below, an accurate tabulation of the spinning, weaving and knitting mills in the Southern States is shown, together with their equipment. The mills are grouped according to their equipment and product. Mills that spin only are grouped accordingly and the same is true of the mills that spin and weave, spin and knit, knit only and weave only. The table also gives the number of mills in each state, the number of spindles, looms and knitting machines, and the total figures, by States and for the whole South.

The convenient arrangement of the table clearly shows each division of the mills, together with their equipment. The information contained in the table is compiled from Clark's Directory of Southern Textile Mills, January 1, 1936.

STATE	SPINDLES						LOOMS				KNITTING MACHINES						TOTALS			
	Spin Only		Spin and Weave		Spin and Knit		Spin & Weave		Weave Only		Spin & Knit		Knit Only		Classified		Total	Total	Total	Total
	Mills	Spindles	Mills	Spindles	Mills	Spindles	Mills	Looms	Mills	Looms	Mills	K. M.	Mills	K. M.	C. K.	F. F	Mills	Spindles	Looms	K. M.
Alabama	25	353,402	53	1,515,598	5	40,518	53	35,158	4	287	5	260	16	2,811	2,920	151	103	1,883,526	35,445	3,071
Arkansas	1	2,000	4	41,992	—	—	4	675	—	—	—	—	—	—	—	—	5	43,992	675	—
Florida	—	—	—	—	—	—	—	—	—	—	—	—	1	57	57	—	1	—	—	57
Georgia	34	646,502	92	2,699,132	9	133,144	92	58,427	6	583	9	2,808	31	5,265	8,020	53	180	3,466,682	59,010	8,073
Louisiana	—	—	1	54,000	—	—	1	2,317	—	—	—	—	3	774	774	—	4	54,000	2,317	774
Mississippi	2	26,692	11	195,392	1	5,000	11	5,640	2	280	1	400	5	772	1,145	27	21	227,084	5,920	1,172
North Carolina	190	2,669,020	132	3,517,324	8	204,016	132	86,576	42	7,158	8	2,345	179	31,481	32,250	1,576	587	6,346,864	93,734	33,826
Oklahoma	—	—	2	31,744	—	—	2	627	—	—	—	—	—	—	—	—	2	31,744	627	—
South Carolina	20	228,248	126	5,595,030	1	11,656	126	137,682	14	1,949	1	309	6	968	1,238	39	178	5,823,278	139,631	1,277
Tennessee	10	179,412	17	373,464	9	150,472	17	8,893	7	713	9	2,736	63	15,360	17,606	490	115	703,348	9,606	18,096
Texas	5	27,028	23	235,908	—	—	23	5,716	—	—	—	—	2	115	85	30	30	262,936	5,716	115
Virginia	3	25,528	20	706,402	1	19,632	20	20,271	15	2,842	1	34	23	5,590	5,510	114	67	731,930	23,113	5,624
Totals	290	4,157,832	481	4,965,986	34	564,438	481	361,982	90	13,812	34	8,892	329	63,193	69,605	2,480	1,293	19,575,384	375,794	72,085

Note:

Alabama—One mill spins, weaves and knits.
Georgia—One mill spins, weaves and knits.
North Carolina—Two mills spin, weave and knit.
South Carolina—One mill spins, weaves and knits.
Virginia—One mill spins, weaves and knits.

The total number of mills includes plants, such as dyeing and finishing plants, braiding mills, etc., the equipment of which is not listed above.

Trend of Cotton Production in The United States

The Bureau of Agricultural Economics of the United States Department of Agriculture recently issued a special report on "Cotton Production in the United States," in which it has analyzed the trend of production in this country and factors affecting it. The full text of that portion of the report, entitled "Summary and Conclusions," is presented herewith. —Ed.

COTTON acreage and production in the United States during the last 150 years have shown a rather steady upward trend although interruption of relatively short duration occurred from time to time. During the period from 1890 to 1929, acreage increased at an annual rate of approximately 550,000 acres and production at about 175,000 bales. Although acreage and production have been drastically reduced since 1929, the resources of the South are such that the pre-depression trend could be resumed and maintained for many years if demand conditions justified.

Within the last three decades the boll weevil has had an important effect not only in causing shifts in cotton acreage and production but also upon the quality of and the cost of producing the crop. "The short cotton crops and relatively high cotton prices of the early 1920's resulting from heavy boll weevil infestation provided an incentive for a tremendous expansion in cotton acreage and production in the western and northern sections of the cotton belt in which the insect was held in check by climatic conditions, and for increased efforts in the infested areas to make adjustments that would permit profitable cotton production under boll weevil conditions.

Cost of Production

The weevil through reduced yields increased the cost of producing cotton in many of the older areas, but insofar as the average for the United States as a whole is concerned this was offset to some extent by the large expansion in the western sub-humid areas in which average costs are relatively low. Furthermore the development and adoption of earlier-maturing varieties and improved cultural practices have resulted in substantial recoveries in yields and reductions in costs in many of the older areas.

Production of an increasing proportion of the cotton crop in low-cost areas tended to strengthen the competitive position of cotton production in the United States compared with that of other fibers and with cotton production in other countries. Increased production in low-cost areas, on the other hand, tended to lower cotton prices and to depress further the economic position of the producer in the high cost areas in which commercial farm alternatives were limited or not very profitable.

Enterprises of local importance, other than cotton, were adopted with profit in many of the areas in which the boll weevil had caused reductions in cotton acreage. No commercial enterprise was found that generally could be substituted for cotton, however, and with the high cotton prices in the early 1920's cotton acreage in the older areas began to increase, particularly in the areas where yields had recovered materially. This recovery in cotton acreage in the older areas together with the continued expansion in many of the newer sections brought production back in line with the pre-war trends by 1925.

Staple Improves

The average staple length of the cotton crop, which had been reduced by the adoption of shorter staple earlier maturing varieties in many areas to reduce weevil damage, and by the increased production in the western sub-humid areas in which relatively short staples are grown, has increased since 1928. This tendency to increase staple length may improve the position of the United States in competing with foreign producers.

The recovery in cotton production in the United States and the expansion in foreign countries which had been stimulated by the high prices of the early 1920's, followed by the reduced demand accompanying the depression, resulted in the accumulation of record supplies. As a result cotton prices fell to very low levels in 1931 and 1932, and incomes from cotton and cottonseed decreased approximately 62 and 67 per cent, respectively, below the levels that prevailed in 1929-30. These low incomes, together with the continued relatively high prices of commodities and services bought, were reflected in a widespread economic crisis in the cotton belt.

The decreases in cotton prices and incomes had the usual effect in reducing acreage, which had declined from 43,000,000 acres harvested in 1929 to 36,000,000 acres in 1932. By 1933, however, readjustments in costs, increased labor supplies due in large part to unemployment in industrial and other non-farm occupations, and the lack of commercial farm alternatives resulted in the planting of 40,800,000 acres in cotton. This large acreage together with the continued low level of demand would have resulted in a further increase in carryover, which had reached the unprecedented level of 13,000,000 bales at the beginning of the 1932-33 crop season.

Effect of Plow-Up

The 1933 plow-up program of the Agricultural Adjustment Administration was effective in reducing the harvested cotton acreage of that year to 30,000,000 acres, from which 13,000,000 bales were harvested. A continuation of the cotton program of the AAA together with the drought was effective in restricting cotton acreage in 1934 to 27,000,000 acres, which was 34 per cent below the average acreage during the 1928-1932 period. This together with some improvement in demand resulted in a reduction in carryovers and in the

(*Continued on Page 160*)

Assigned Work-Loads For Battery Fillers

By C. A. Butterworth

THE following table of work-loads for *battery fillers* is not to be considered absolute, but the standards are considered conservative and might possibly be exceeded in some mills.

The tests were made over a period of seven years, and were corrected from time to time as conditions improved, to determine a practical work-load for maximum efficiency.

These tests were made on Draper looms, 48 inches to 64 inches wide, weaving cloth from 39 inches to 67 inches in the reed. Looms were laid out 8, 10 and 12 looms to the alley. Speed of the looms was from 132 to 156 picks per minute. Counts of filling ranged from 2¼'s to 35's single and 2/8's to 2/24's ply filling. Three lengths of bobbins were used. During the period tests were made requiring the operative to obtain filling from trucks placed at the end of the weaver's alleys in the main alley, and from boxes attached to the looms. In the tests where the filling was obtained from the trucks at end of weaver's alleys, the operatives were required to wear aprons holding approximately 50 full bobbins of filling. Aprons were not used when filling was obtained from boxes attached to the looms. The number of bobbins placed into the batteries were approximately the same in both methods.

Where filling was kept in trucks in the main alleys no *filling haulers* were necessary. This affected a saving of approximately 30 per cent in the cost of keeping looms supplied with filling. *Filling haulers* were used when running several colors, filling being kept in boxes attached to the looms.

The operatives were thoroughly instructed in the best method of performing their task to save energy, and to secure the minimum of *rejects* or as some term them refills. Studies were made over quite a period of the causes of *rejects*. The results of these studies were to reduce the *rejects* or *refills* from 9.07 per cent to 1.45 per cent.

At the outset of the time studies we arbitrarily allowed 12 minutes (20%) of each hour for rest periods. Approximately 29 minutes per hour was required to place the filling bobbins into the batteries and 19 minutes was required for walking to obtain filling bobbins and in walking from loom to loom. The average number of filling bobbins placed into the batteries per hour was 576 for looms running 95 per cent production. *Battery fillers* were required to pick up all bobbins of filling dropped either into the *quill cans* or onto the floor, but were not required to take all *rejects* out of the *quill cans*. These *rejects* were placed back into the trucks or boxes by the *quill boys* and the *battery fillers* were trained to put these *pieces* into the looms first.

Stop watch tests were made to determine the length of time the full bobbins of filling would last in the looms, and these were "tied in" at various times with the calculated length of time the full bobbins of filling would last in the loom.

The following table was made up using the above figures.

To find the length of time a full bobbin of filling will last in the loom, first, find the length of yarn on the bobbin as follows:

Weigh full doff of bobbins and subtract from this the weight of an equal number of empty filling bobbins.

If 228 bobbins weigh 23 pounds net yarn, then—$\frac{23}{228}$ equals .1009 pounds of filling per bobbin.

Then 840 yards per pound multiplied by the count of yarn and this multiplied by .1009 pounds per bobbin equals the length in yards on full bobbin of filling.

Ex.—840×20×.1009 equals 1695 yards filling on the bobbin.

Second, find the length in yards consumed per minute by the looms as follows:

$$\frac{\text{Width in reed } 54'' \times \text{Picks per min. } 140 \times \%\text{ Production } .95\%}{36'' \text{ per yard}}$$

equals 199.5 yards of filling consumed per minute by the loom.

Third, find the length of time a bobbin of filling will last in the loom as follows:

Length of filling in yards on bobbin divided by the length in yards consumed by loom per minute equals the length of time in minutes the full bobbin will last in the loom.

$$\text{Ex. } \frac{1695 \text{ yards of bobbin}}{199.5 \text{ yds. consumed per min. by loom}} \text{ equals}$$

8.5 minutes bobbin lasts, approx.

Find the number of looms (from the table) an operative can run if a full bobbin of filling will last 8.5 minutes, with the loom running 95% production. Opposite 8.5 in the extreme left-hand column and under the column headed 95% production find 85 looms to assign operative.

The number of looms to assign an operative, for any length of time a full bobbin of filling will last in the loom, and for any per cent production, can be found as follows:

If the actual or estimated production of 91.5% was used the constant is found by dividing the 9.6 (constant for 100% production) by .915% production.

Ex.—$\frac{9.6}{.915}$ equals 10.49 constant for 91.5% production.

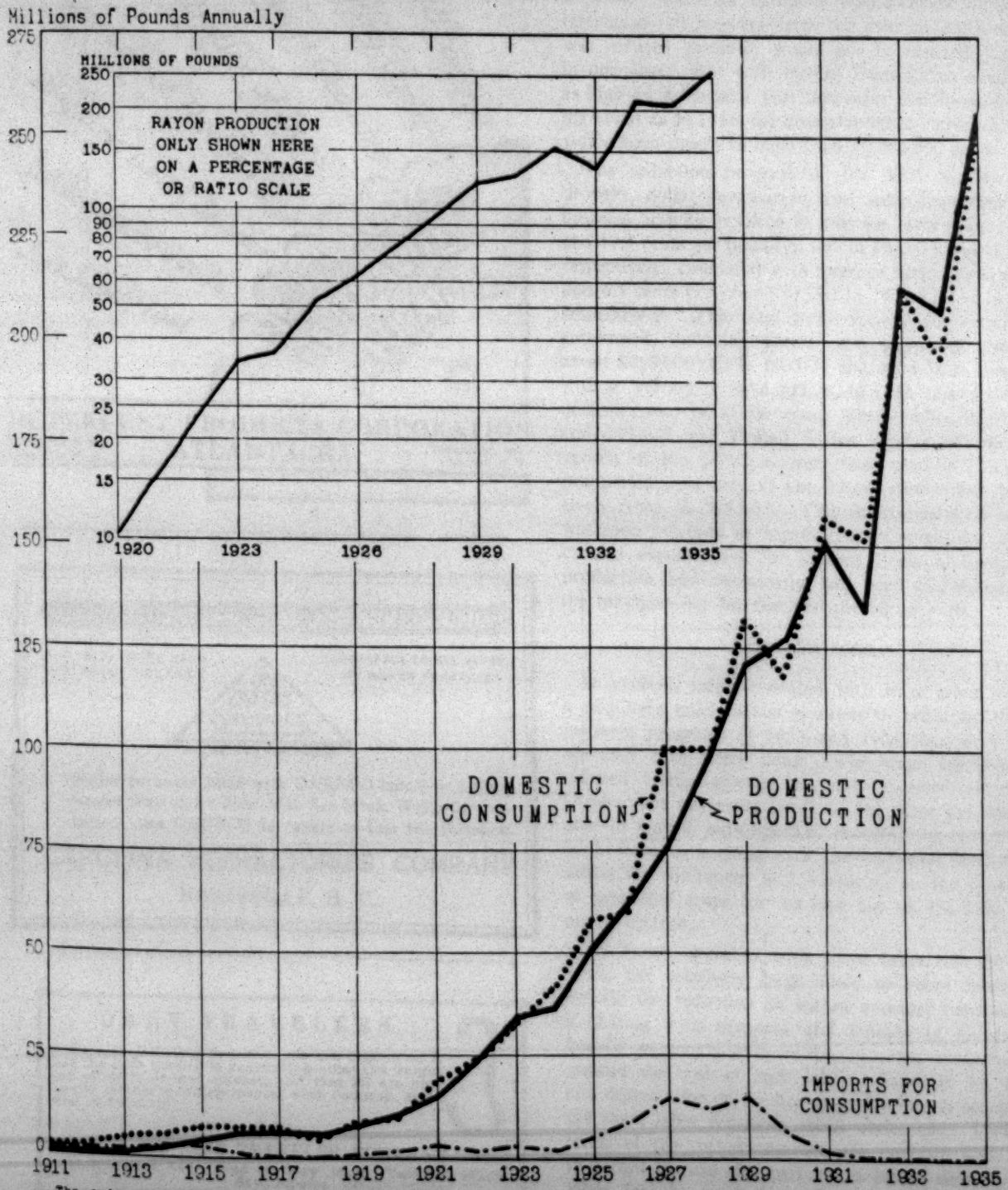
If full bobbin of filling lasts 8.33 minutes in the loom,

(*Continued on Page 165*)

U. S. Rayon Production, Consumption and Imports

Source Textile Economic Bureau, Inc.

Published in Rayon Organon



The main chart above is drawn on an arithmetic or regular scale and shows the actual amounts by which the rayon industry has grown from year to year. The small inset chart above is drawn on a percentage or ratio scale and shows the rate at which, or the percentage by which, rayon production has increased.

Trend of Cotton Production in the United States

(*Continued from Page 157*)

total supply of American cotton from about 26,000,000 bales for the 1932-33 to 20,300,000 bales for the 1934-35 season, a reduction of 22 per cent.

Income from the cotton crop of 1935 under present conditions as to costs and labor supply in the South is sufficient to encourage a material expansion in plantings in 1936. With the complete abandonment of acreage restriction full recovery from the level to which acreage was reduced, probably would not be realized, however, in one year. But with income from cotton continuing as high as in the past year and other conditions remaining about as in 1935, the area planted to cotton probably would soon return to more than 40,000,000 acres.

The reduction program of the AAA together with drought, dollar devaluation, and some improvement in business activity resulted in average farm prices of 9.7 and 12.4 cents per pound of lint in 1933-34 and 1934-35, respectively, compared with average farm prices of 5.7 and 6.5 cents per pound of lint in 1931-32 and 1932-33, respectively. The total gross income for cotton and cottonseed, including Government payments, averaged about $850,000,000 in 1933-34 and 1934-35 as compared with an average of $496,000,000 in 1931-32 and 1932-33, or an increase of 71 per cent. Furthermore, in 1933-34 and 1934-35 the United States indexes of prices of certain of the principal cost items used in living and production were only 15 and 22 per cent higher, respectively, than in 1932-33. This improvement in income was soon reflected in improved farm conditions and increased expenditures for various items of living and production and necessarily had been eliminated from the purchase list for the two preceding years.

Labor Situation

In general, farms operated with wage labor were in a relatively much better position to profit by the adjustment programs of 1933 and 1934 than were farms operated with share labor. The wage operator who reduced cotton acreage not only received all of the Government payments made to the farm but was also able to curtail out-of-pocket expenses by reducing his labor force in keeping with the decreased need and to utilize his equipment and workstock in the production of permitted crops for his own use on the land taken out of cotton.

On farms operated with share labor, on the other hand, the relatively large force of share labor kept despite the reduction in cotton acreage, together with a sharing with croppers and tenants of Government benefit payments and cotton incomes, materially increased the cost of such labor. Expenses for repairs and depreciation on the houses and buildings occupied by the share labor remained about unchanged. Under the terms of the cotton contract, the operator also agreed to permit the use of a part of the rented acres by share labor for the production of food and feed for their own use.

The advantages of using wage labor under the

programs created a strong incentive to shift from share labor to wage labor and to reduce the labor force.

Regardless of the type of labor used, many costs of an overhead nature were unaffected by the reduction in 1934 as compared with the situation that would have existed without the adjustment program. Tractor operating costs were reduced but expenses for workstock and equipment remained unchanged. Other overhead items such as taxes, building repairs and depreciation, insurance, and road and ditch maintenance, also were unaffected.

How Labor Benefited

In general, share labor benefited more from the reduction program in 1933 than in 1934. In 1933, the reduced volume of cotton per worker was offset in part by reduced out-of-pocket expenses for picking and ginning, and cotton incomes were supplemented by a part of the Government benefit payments proportionate to the share labor's interest in the crop that was destroyed. In 1934, the large reduction in the usual acreage worked per individual or per family also was offset in part by reduced production expenses but the cotton incomes of share croppers and ordinary share of tenants were not supplemented by so large a proportion of Government benefit payments as in 1933 and these two types of tenants were benefited in cash income relatively less by the 1934 program than were landlords. This cash income situation in respect to croppers and ordinary share tenants in 1934 may have been offset, however, by the privilege of using the "rented acres" for the production of food and feed crops. Information obtained from the Replacement Corps Section of the AAA indicates that much of the "rented acres" in 1934 was used for this purpose.

"Managing" share tenants and cash tenants were relatively much further benefited by the adjustment program in 1934 than were share croppers and ordinary share tenants. On the basis of a 35 per cent reduction in cotton acreage in 1934, share croppers and ordinary share tenants received only approximately 12 per cent and 18 per cent, respectively, of the cotton adjustment payments made to their respective producer units, whereas tenants who managed the operation of their farms and were classed as "managing" share tenants received approximately 56 per cent of the cotton adjustment payments made to their farms, and cash tenants received all. The cotton contract proposed by the AAA for 1936-39, provided that a share cropper would receive 25 per cent of the benefit payments allocated to his producer unit and a share tenant, regardless of whether "managing" or ordinary, would receive 50 per cent.

The reduction in area planted to cotton from 40,850,000 acres in 1933 to 27,000,000 acres in 1934 materially reduced the labor requirements for producing cotton in the South. Some of this labor was shifted to good advantage to the production of farm feed and food. Contracts for 1934 and 1935 stipulated that each producer should, insofar as possible, maintain on his farm the normal number of tenants and other employees. Adequate data to show to what extent producers employed the same number of tenants and laborers they would otherwise have maintained are not available. Further-

(*Continued on Page 164*)

Dropping of Sales Report Discussed

(Journal of Commerce)

During the past few days there has been a good deal of discussion in the market of the advisability of discontinuing the system by which sales of print cloths and carded broadcloths are reported, and it has developed that there are strong opinions on both sides of the question.

Those who favor continuance of the system say that despite the fact that it is not a complete service, in that reports are not procured from all sellers, it nevertheless provides a guide to merchandising of no little value and is effective as a check against such unfounded rumors as frequently are bandied about, especially in a declining market.

Value of Accuracy Stressed

These interests point out that the system was initiated in the belief that since news of sales gets around the market in any case it is to the best interests of all concerned to see that the sellers have an accurate picture of the sales from day to day. This belief, they say, has been borne out by actual experience. Further, in a period of rising prices the reports have been of value because they have kept sellers well posted on not only prices paid but also on the volume of business, and to this extent have been a guide to efficient merchandising.

A further point which is cited in favor of continuance of the reporting of sales is that in a quiet period the reports provide ample evidence of the quietness of trading and therefore serve to forestall whatever suspicions individual mills might have that their selling agents are not getting their share of available business.

There are several merchants who feel that disadvantages of the system outweigh the advantages. They say that although at the outset the reports covered at least 75 per cent of production of the cloths involved they are now being made by mils turning out only about 50 per cent of the print cloths and broadcloths made.

Although the reports are theoretically for the use of those merchants who participate, it is general knowledge that the information in the reports is circulated rapidly among both buyers and sellers. In a declining market those who would discontinue the reports insist this serves to injure the market, since a report of a new low gets around so fast that the entire market may be weakened because of a single instance of weakness. These interests contend that more harm is done to the market in a period of declines than good is done in a period of advances. They make the point that a rising market does not need artificial assistance, because advances develop naturally and produce active buying, which itself serves to keep sellers postd as to all price developments.

The statment is made also that an efficient merchant in any circumstances is able to obtain at any time a fairly accurate idea of both the amount of business that is being done on an individual fabric and the prices that are being paid.

There is no thought of discontinuing other activities of the print cloth group. Merchants throughout the market recognize that group activity as such is beneficial to mills, selling agents and buyers. The fact that it provides machinery for determination of common policy smoothly

and effectively at times when rapid decisions are necessary to the stability of the market is alone sufficient reason for existence of the group, and in fact the achievements of the past few years in this line have amply repaid the market for the time and effort expended in establishing and maintaining the group.

Further discussions of the possibility of discontinuing reporting of sales are regarded as inevitable, and it is considered likely that before any decision is made points both in favor and against in addition to those already discussed will be brought out. While a number of merchants are in favor of dropping the reports and several are equally firm in their conviction that the reports should be continued, there are still others who have not formed a conclusive opinion on either side.

New Reeves Motordrive Uses Any Standard Make of Motor

To meet the need for a variable speed drive which combines in a compact, self-contained enclosure any standard make of constant speed motor, variable speed control mechanism and (where required) speed reduction gears, Reeves Pulley Company, Columbus, Ind., has developed the Reeves Vari-Speed Motodrive.

In this newest addition to the line of Reeves variable speed control equipment, there is no restriction to one make of driving motor. Any make of foot type, constant speed motor, within standard NEMA dimensions, may be used, the company reports.

Speed variation as provided by the motodrive is infinite between predetermined limits. Merely by turning a convenient handwheel, any desired speed within the range is made smoothly and quickly available to insure maximum efficiency of the driven machine. A convenient dial indicator registers speeds on a scale calibrated from 1 to 6.

The announcement from the company says: "The motodrive combines features of both the well-known Reeves Variable Speed Transmission and Vari-Speed Motor Pulley. It utilizes the proved mechanical principle of a V-belt running between two sets of cone-faced discs which are adjustable in diameter and mounted on parallel shafts. One shaft receives power at constant speed from the motor and the other shaft transmits power at infinitely adjustable speeds to any driven machine. Outstanding engineering features include a V-belt carefully built to Reeves' individual specifications and developed exclusively for this exacting, high-speed service; a system of thorough ventilation to maintain uniformly efficient temperatures of motor and variable speed mechanism; and positive and effective lubrication, with conveniently located force feed fittings. Another important feature is that is that the variable speed shaft may be extended on either side of the unit as required.

"The drive is available in two attractive, modern and compact designs—horizontal and vertical. Each design is built in four sizes which take motors from ¼ to 7½ H. P. capacities and which cover speed ratios from 2:1 through 6:1. Reduction units of helical gear type in ratios up to and including 189:1 may be incorporated in the drive. In different combinations of sizes, ratios and reduction gears, output speeds ranging from a minimum of 1.35 R. P. M. to a maximum of 3480 R. P. M. may be obtained. With this broad selection of motor speeds, ratios of speed variation and reduction ratios, the motodrive meets practically all variable speed requirements up to 7½ H. P. capacities. Units may, within certain limitations, be mounted on wall, floor or ceiling or may be mounted directly on the driven machine, thus providing great flexibility in use of the motodrive."

Trend of Cotton Production in the United States

(*Continued from Page 161*)

more, in evaluating the farm employment situation in the South the return of people to farms because of unemployment in industrial and other non-farm occupations must be taken into account. It is estimated that there were approximately 1,560,000 more people on farms in the South Atlantic and South Central states in January, 1935, than in January, 1929.

The dominant position that cotton occupies in the agriculture of most areas in the cotton belt and the fact that cotton acreage in these areas was increased in 1933 even with the low prices of the two preceding years furnish evidence of the greater comparative advantage of cotton relative to any other commercial farm enterprise or combination of enterprises that has existed generally in the cotton belt. On the basis of average yields, farm prices, and costs other than labor during the 10 years ended 1933, it is estimated that, of the four crops most extensively grown in the cotton belt, which represented more than 75 per cent of the total crop acreage in the 10 principal cotton-producing states, the average returns to labor from cotton were nearly three to five times as great as the returns from corn, wheat and oats. In certain relatively small areas the returns from crops such as tobacco, sugar cane, rice, and fruit and truck crops exceed those from cotton but, due to limited markets or to the soil and climatic requirements of these crops, they do not offer a promising alternative for the use of a substantial portion of the acreage normally devoted to cotton production.

Returns from commercial livestock in the cotton belt are generally considerably smaller than from cotton on account of the low yields of feed crops and the inadequacy of pastures in most areas. On the basis of average yields and prices during the 10 years ended 1932, it is estimated that an average of from about two to nine times as many acres in crop land and improved pastures was required to produce $100 worth of dairy, beef cattle, and hog products as was required to produce $100 worth of cotton. The acreage requirements for poultry were not so great as in case of these other classes of livestock, but were 50 per cent greater than for cotton.

The low net income to cotton producers and the limitations upon the possibilities of shifting from cotton to other enterprises in the high cost producing areas should not be considered to be insurmountable barriers against any possibility for improving the status of many of the cotton producers in the South. Cotton production in the South has been continually readjusted to changes in conditions of production and of demand for cotton. As a rule the readjustments have been forced by circumstances and at great losses to many producers. Flexibility in farm programs and provision for readjustments seem necessary. Any long-time cotton production program in the South must take this into account and area readjustments in production should be effectively co-ordinated and integrated with considerations having to do with

land use and soil conservation, and with the rehabilitation or resettlement on more productive land or in non-farm occupations of some of the human resources in the cotton belt.

Relation to Foreign Cotton

The domestic cotton production situation is closely related to the foreign cotton production situation through the medium of prices in world markets. The American cotton producer is vitally interested, therefore, in past and prospective future developments in foreign cotton production insofar as these developments may effect the foreign market outlet for his cotton. Production resources both in the United States and in foreign countries are such that the long-time trends in world cotton production could be maintained for a long time to come.

Assigned Work-Loads for Battery Fillers

(*Continued from Page 158*)

then 8.33 multiplied by 10.49 equals 87.37 or 87 looms to assign an operative.

This table is made up for Draper Looms, bobbins laid parallel in the battery. Any other per cent production

Schedule of Batteries To Assign To Operative

Per-cent Production	100%	95%	90%	85%	80%	75%
Constant	9.61	10.00	10.67	11.29	12.00	12.80
.50	5	5	5	6	6	6
.75	7	8	8	9	9	10
1.00	10	10	11	11	12	13
1.25	12	13	13	14	15	16
1.50	14	15	15	17	18	19
1.75	17	18	18	20	21	22
2.00	19	20	21	23	24	26
2.25	22	23	24	26	27	29
2.50	24	25	27	29	30	32
2.75	26	28	29	32	33	35
3.00	29	30	32	34	36	38
3.25	31	33	35	37	39	42
3.50	34	35	37	40	42	45
3.75	36	38	40	43	45	48
4.00	38	40	43	46	48	51
4.25	41	43	45	49	51	54
4.50	42	45	48	52	54	58
4.75	46	48	51	55	57	61
5.00	48	50	53	57	60	64
5.25	50	53	56	60	63	67
5.50	53	55	59	63	66	70
5.75	55	58	61	66	69	73
6.00	58	60	64	69	72	77
6.25	60	63	67	72	75	80
6.50	62	65	69	75	78	83
6.75	65	68	72	78	81	86
7.00	67	70	75	80	84	90
7.25	70	73	77	83	87	93
7.50	72	75	80	86	90	96
7.75	74	78	83	89	93	99
8.00	77	80	85	92	96	102
8.25	79	83	88	95	99	106
8.50	82	85	91	98	102	109
8.75	84	88	93	101	105	112
9.00	86	90	96	103	108	115
9.25	89	93	99	106	111	118
9.50	91	95	102	109	114	122
9.75	94	98	104	112	117	125
10.00	96	100	107	115	120	128
10.25	98	103	109	118	123	131
10.50	101	105	112	121	126	134
10.75	103	108	115	124	129	138
11.00	106	110	118	126	132	141

Length of time in minutes bobbin lasts in loom — Looms to assign per operative

may be obtained by dividing 9.6 constant for 100% by the desired per cent production. Bobbins lasting longer than 11.00 minutes weaving time may be used by multiplying the constant for any per cent by the actual time the bobbin lasts in the loom.

Example: If bobbin lasts 15.50 minutes and per cent of production is 90%, 10.67×15.50 min. equals 165 looms to assign the battery hand.

For other type looms where bobbins are not laid parallel in the battery, assign only 68 per cent of above looms per operative.

Steel Heddle Enlarges

The Atlanta office of the Steel Heddle Manufacturing Company (general office and main plant in Philadelphia, Pa.3, at present in the Forsyth Building with H. Raiford Gaffney in charge as district manager, will be located after January 31, 1936, at 268 McDonough Boulevard, Atlanta, Ga.

This rather important change is not only necessary to create improved facilities, with larger quarters for sales purposes, but most of all, to keep in closer touch with another newly created enterprise called The Stehedco Development Division.

This concern is located at the same address and will be operated as a division of the Steel Heddle Manufacturing Company.

Concentrated selling of the new products will be entrusted to Mr. Gaffney, who has been representing the Stehedco Loom Harness line for the past year in the Southern territory covering Georgia, Alabama, Mississippi and Louisiana.

German Rayon Industry

Germany ranked fifth in importance among rayon-producing countries during the first nine months of 1935, according to preliminary trade estimates. Production of rayon and other synthetic textile spinning fibers has assumed increasing importance as restrictions on imports of raw materials, which became increasingly more severe since early 1934, have made it necessary for textile manufacturers to seek domestic substitutes for imported textile fibers. The German rayon output increased from 71,600,000 pounds in the first 6 months of 1934 to 81,000,000 in January-September, 1935, and production of other synthetic textile fibers (mainly staple fiber or cut rayon) rose from 14,000,000 to 22,000,000 pounds. Germany is the world's leading producer of staple fiber, with Italy a close second.

Germany has usually imported considerably more rayon than it exported, but in the first nine months of 1935 the adverse balance was considerably reduced. Imports of rayon declined from 14,246,000 pounds in January-September, 1934, to 10,648,000 in the corresponding period of 1935, and exports decreased from 8,878,000 to 7,396,000 pounds. The excess of imports over exports fell from 5,368,000 pounds in the nine months of 1934 to 3,252,000 in the 1935 period.

Knitting Needles Damage Linen

A curious discovery of how knitting needles may cause a deterioration of linen, unearthed at the Bureau of Standards, proves of interest to the textile industry on account of the novelty and the potential danger to other textiles.

The textile section of the Bureau of Standards found that knitting needles of cellulose nitrate composition were the cause of failure of linen. The linen had been kept for a number of years in the drawer of a swing cabinet located in a living room. One piece had been hemmed and was ready for use as a napkin. The napkin, apparently in good condition, was used and sent to the laundry. When returned there were large symmetrically placed holes along the folds, and it is probable that the average person would have held the laundry responsible for the damage. In this case, however, the owner of the napkin remembered the history of the article and conditions of storage.

"Which Way America"

SPEAKING before the Civic Forum of Binghamton, N. Y., Noel Sargent, secretary of the National Association of Manufacturers, asserted that "as more and more present national policies are abandoned as failures, or cast aside as unconstitutional, we will have more and more business improvement and more and more private employment."

Mr. Sargent was speaking on the subject, "Which Way America," with Senator Robert Wagner of New York supporting the contention that the nation should continue to follow its present path, and Harry Laidler, co-director with Norman Thomas of the League for Industrial Democracy, contending for more radical policies. Mr. Sargent presented the conservative answer.

"The first and primary need of the country, in the interests of recovery, prosperity and progress, is the preservation of the economic principles and constitutional guarantees underlying the American system—that is the proper way for America," Mr. Sargent said.

"Is it not significant that industrial progress has substantially advanced in this country since the Supreme Court in the NIRA decision ended the major 'attempted solution?" he asked. "To now say that this progress is due to deliberate planning on the part of government is certainly, to say the least, inconsistent with the former implications of government representatives that the end of the NRA would mean industrial breakdown.

"Recent business improvement is, in my opinion, in spite of and not because of, government efforts to plan and control private industry and private labor. Here are the facts:

"1. In December, 1935, weekly wages were 8 per cent higher than in May, 1935, when the NIRA was thrown out—but weekly hours of work were only 38.8, representing an increase of about 7 per cent.

"2. Manufacturing employment increased 5 per cent.

"3. Industrial production increased 18 per cent—and for the first time since the artificial spurt before the NIRA went into effect, reach 'par' or 100 per cent (the 1923-1925 level). Where is the 'chaos' which had been forecast?"

Mr. Sargent declared that it is not a logical position to assert that those who oppose one form of legislation should immediately present an alternative.

"It is far more constructive to expose such measures to the light of experience and subject them to the test of logic," he said. "We can build soundly and surely only upon those principles which have been evolved out of the realities of experience.

"The question today of whether we should go ahead with our present national policy, go to the left of it, or return to the right of it, is fundamentally one of philosophy. The conflicts of philosophy which are involved are essentially three, namely:

"1. Is the ultimate social welfare of the greatest number advanced by making individuals increasingly more reliant on the government;

"2. Do we fundamentally believe that the aims of governmental policy and action should be to establish equality for all, or do we believe that liberty, the right

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Federal-State Cotton Research Program

The following is abstracted from a paper presented to the Textile Section of American Society for Testing Materials by H. W. Barre, Principal Pathologist in Charge of the Division of Cotton and Other Fibre Crops and Diseases, Bureau of Plant Industry, Department of Agriculture, Washington, D. C.

THE United States Department of Agriculture has for several years been working towards a co-ordinated cotton research program. Last February these efforts took definite shape in the form of a preliminary report published in mimeographed form and made available to those interested in and participating in the program. This statement reports in some detail the researches needed and planned in such fields as cotton breeding and genetics, botany and morphology and development of cotton, physiology and nutrition in relation to quality and yields, cotton diseases and insect control, fertility and cultural problems, as well as researches in ginning, preparation for market, fibre analysis in relation to utilization in broader senses, competition and demand, world changes in production, consumption and price, marketing and financing. These researches concerning all aspects of cotton production, utilization and marketing, are conducted throughout the cotton belt in co-operation with the State Agricultural College and Experiment Stations and in Washington. All together they constitute a very comprehensive program of research looking to the improvement of the quality of our cotton and to the strengthening of the position of the crop in world demand and trade.

In the brief time which we have allotted to this subject this afternoon, I shall not attempt to discuss the entire program, which involves work in six different Bureaus of the Department of Agriculture and work in practically all of the cotton-growing States, but shall confine my remarks to a discussion of parts of this program that have to do with the work of the Division of Cotton and Other Fibre Crops and Diseases of the Bureau of Plant Industry, in co-operation with the Cotton Fibre Research Station of the Bureau of Agricultural Economics, and other aspects of the work of this Division in co-operation with the State Agricultural Experiment Stations.

Possibly the Raw Cotton Committee of the American Society of Testing Materials would be interested most in some of the researches conducted by this Division in co-operation with other agencies designed to measure some of the specific properties of cotton fibres and to determine the physical and biological factors responsible for the presence or absence of or for the variations in these properties: In other words, a report on some of our researches on quality of cotton and plans for improvement in the quality of American cotton.

Cotton spinners have become quality conscious. Those who are concerned with spinning and utilization research and many of the textile manufacturers are seeking cottons with certain specific fibre properties. Until recently we have had comparatively few measures for cotton fibre quality. The excellent work done by the technical laboratories of the Cotton Marketing Division of the Bureau of Agricultural Economics now enables us to speak of cotton more in terms of certain specific fibre properties than previously has been possible. They have developed improved methods and apparatus for determining accurately the proportion of fibres of different length in a given sample. They are now measuring fineness, strength, degrees of maturity, and variability of some of these, and they are studying structure, composition, shape and behavior of cotton fibres. They are studying neps, naps, and other fibre imperfections and investigating the importance of leaf, shale and other foreign matter in cotton lint. They are measuring color, and have determined some of the factors which are responsible for different colors in cotton. In other words, they can now take a sample of cotton, and by analyzing it and putting it through the various tests that they have developed and adapted, give you a very clear picture as to some of its properties, and can indicate what it might best be used for.

Cotton plant research in this country has lagged far behind the types of cotton fibre research referred to above. We know very little about these factors which are responsible for these different properties. Take the simple question of variation in length of fibres or the lack of uniformity. The fibre technologists tell us that in a sample of 1-inch cotton only about 25 per cent by weight of the fibres would be included in a 1/8-in. zone around the staple length. The longest fibre in such a sample might be 1½ ins. or longer, and the length varies from that to nothing. Why this variation? We know now, of course, that a part of it is due to the fact that the individual fibres continue to form and develop on a seed for some days after the seed is fertilized. In other words, the individual fibres form at different times and grow for a different number of days, and some probably stop growing before others. Because of this growth procedure, it probably will never be possible to produce a cotton with all the fibres the same length, but we must determine how much of this variation is fixed, how much of it is due to heredity, how much to water relations of the plant or to other physiological and ecological factors.

Cross-sections size of fibre or fineness is very important from the standpoint of spinning utility. Individual fibres are not uniform in size throughout their entire length, the proportion of coarse to fine fibres varies with different samples, and certain varieties grown under some conditions are said to produce fine fibre, and other varieties grown under the same or different conditions are said to

produce coarse fibre. The reasons for these variations are not definitely known. We do know that fineness is usually associated with length, but Hopi, a wild cotton, native to the Southwest, with a staple length of ⅞ ins., has a very fine fibre, and also a fibre that is very strong. This might offer possibility for breeding a short cotton of extreme fineness with high productivity.

Strength is, of course, an exceedingly important property of fibre. Dr. Webb and his associates have correlated strength with certain fine properties and characters, and Mrs. Farr has observed variations in the structure of fibres which seem to contribute to strength or weakness. Here again the growth factors, the physical and biological factors responsible for these variations, are not definitely known.

In classing cotton great stress is placed on color. In many cases color probably more than any other factor determines the grade. Variations in color are due to both biological and physical factors, and in some cases the way in which these factors affect color is known. In the case of storm damage and weathering, certain factors operate that need further study. The part that fungi and bacteria play in causing blueing and other off colors needs to be determined.

Other fibre properties such as tensile elasticity, resistance to flexion, abrasion and fatigue should be studied, measured, and evaluated in terms of yarn and fibre quality. Likewise, research must be conducted to determine the influence of different growth factors on these fibre properties.

The way that fibres adhere to the seed and the ease with which they come off the seed coats during ginning are important. A selection from one of our widely grown varieties has less fuzz than the parent variety and shows less tendency to produce nappy cotton. Naps, neps, motes and other fibre imperfections need to be studied in connection with growth factors.

The fibre technologist has given us methods of measuring some of these properties, and those conducting the spinning researches are indicating the value of these properties in terms of spinning utility. We must go into the field, the greenhouse and the laboratory and study plant behavior in response to different conditions in an effort to learn how to produce cottons with the most desirable properties and how to avoid the properties that are less desirable.

As a starting point for some of these researches, in cooperation with the Textile Foundation, we are conducting a regional variety study which consists of planting sixteen different types or varieties of cotton at fourteen different places in the main cotton belt. We are also planting eight varieties at four different places in the irrigated sections of the Southwest. Two of the varieties used in these tests are planted at all of these places from California to North Carolina. This test will be planted three years in succession on the same land and from the same lots of seed. At each location the cotton is planted on as uniform land as can be secured, and each variety is planted at eight different places in the field. We have here a carefully planned experiment to determine the influence of climate, soil, seasonal and weather factors, on cotton-plant growth and production and on the different fibre properties. Accurate weather records are kept so that we can correlate fibre properties such as length, fineness, etc., with rainfall, dry weather or other conditions that obtain during the growing season at each of the fourteen places and with each of the sixteen varieties. There is at least one of these plantings in each important cotton-growing State, making in all 1,792 field plots each year that we shall have samples from for measurement of fibre properties and for spinning tests. These fifty bales of cotton produced each year will be stored until complete fibre analyses have been made of samples from all of the tests and then spinning tests will be made of certain lots where the fibre analyses indicate that there is a difference in the fibre properties. From this test we will not only get accurate data as to the influence of climate, soil, and season on growth and fibre properties in general, but will learn the response of each of the sixteen varieties to the climate, soil, and seasonal factors that obtain at each of the fourteen places for each year of the test.

It will take three or four years to complete this study, but we hope the results secured this year and next year will give us some leads that will indicate short cuts to improvement in quality.

In the meantime additional researches are being organized around our present knowledge of the factors that influence quality of fibre. We know that length, fineness, and probably a great many other properties of cotton fibres are inherited, but we do not know just how these are inherited, or how the different desirable properties might be combined in one variety or strain of cotton. We are, therefore, organizing genetic researches at four different places in the main cotton belt in co-operation with State Agricultural Colleges and Experiment tSations. Careful fibre studies will be made of the pure lines and hybrids developed in these studies, and as rapidly as we learn to what extent and how these properties are inherited, hybrids and selections will be made to combine the most desirable ones. When promising strains or varieties are developed, spinning tests will be made in order to determine the value of these developments to the manufacturing industry.

Some of the work done by our plant physiologists is exploding old theories about the influence of soil and climate on fibre properties. Work recently done by Dr. Sturkie at Alabama and Dr. Armstrong at Clemson College, South Carolina, indicates that soil moisture and, therefore, rainfall influences the length of fibres, and might influence fineness, maturity, and other properties. These studies indicate the importance of intensive researches in these fields, and have prompted the planning of enlarged physiological and ecological researches at several different points in the east and middle south. The work with cotton in the irrigated valleys of the Southwest is also furnishing opportunity for studies of this type.

It will be several years before the results of these researches will be reflected in the quality of any considerable portion of the American cotton crop. In the meantime the program of improvement based on our present knowledge of breeding and of fibre properties and spinning value is going forward. Under Secretary Wallace's leadership committees of the Department of Agriculture are making an extensive and intensive survey and study of all of the outstanding blood lines of animals and strains

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Rebates On Floor Stocks Likely

New legislation designed to correct the inequities by the manner in which processing taxes were terminated will be drafted in the session, according to information obtained by Flint Garrison, director-general of the wholesale Dry Goods Institute, who sent a bulletin to members on the status of processing tax claims.

Mr. Garrison's information came from the Department of Agriculture, where he learned that it is the determination of the Administration to correct such inequities as exist. The new legislation, which is being held up pending completion of the Soil Conservation bill will be designed to provide for proper rebates of floor stocks of goods held on January 6, 1936, on which the processing tax has not been paid, and on which the holder has been unable to secure a refund from his sources.

The bulletin reports that original processors are making rebates to wholesalers, covering goods invoiced between October 8, 1935, and January 6, 1936, with most mills disregarding the date the order was placed and making the rebates on all goods invoiced during the ninety-day period.

With respect to converters and underwear knitters, the Institute's committees are at work with committees in these two groups, and the Institute recommended that wholesalers accept no settlements of claims on a basis other than that adopted by the original processors.

Negotiations with respect to hosiery disclosed, the bulletin reports, that a general agreement applicable to all cases could not be reached. The opinion expressed by the Institute is that "the basis of adjustment recommended to hosiery manufacturers by the National Association of Hosiery Manufacturers will, in the majority of cases, afford little or no protection to wholesalers."

Settlement Basis Recommended

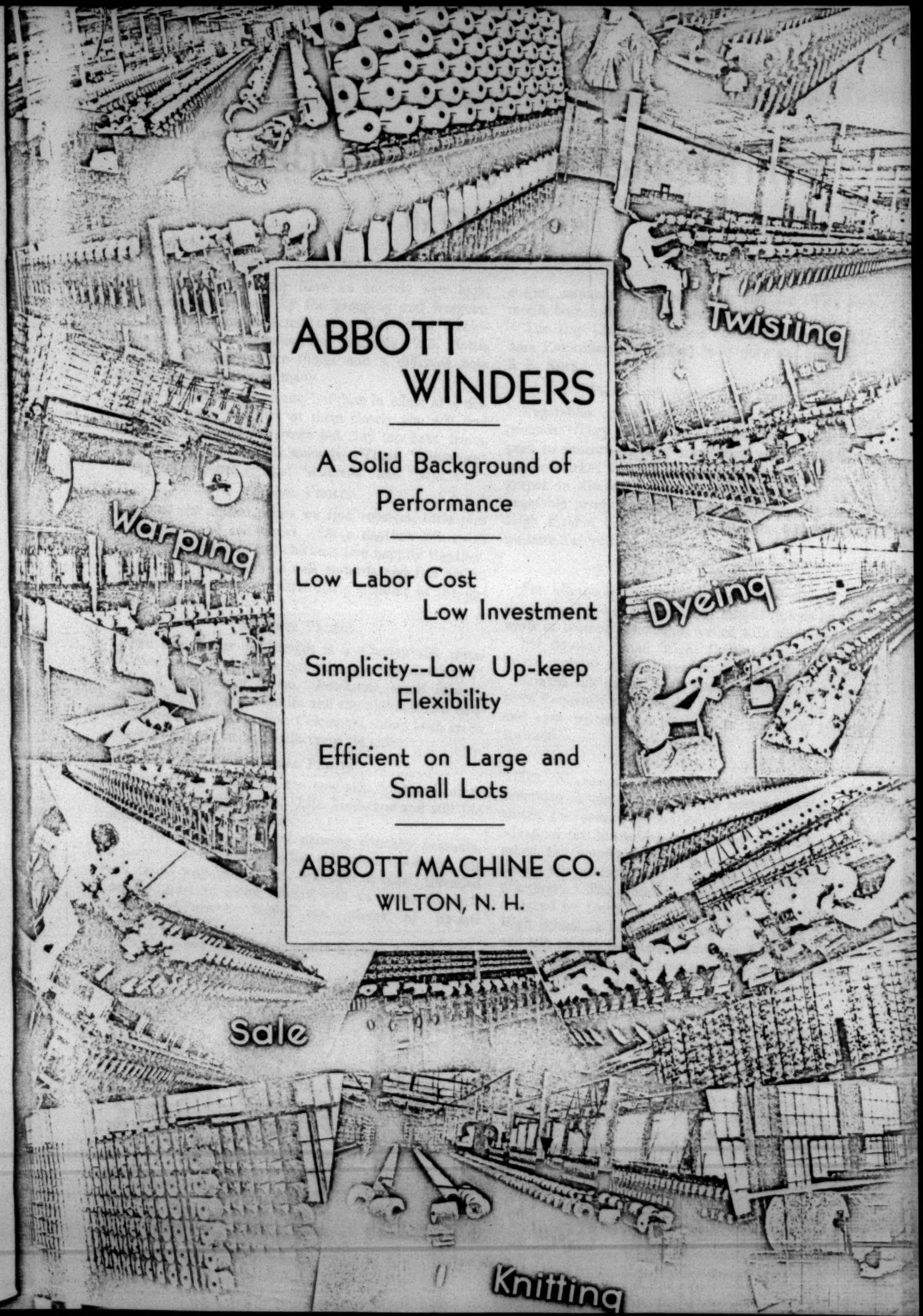
The bulletin says certain hosiery manufacturers who spin their own yarns are making adjustments on the basis used by original processors cited above. Some yarn spinners granted a greater degree of protection than was contained in the standard spinners' clause.

The Institute recommends the following basis for settling all claims:

"No. 1. No claim of a wholesaler against his manufacturers should be based on the amount of the wholesaler's inventory, but, instead, should be based on goods invoiced by the manufacturer to the wholesaler within a given period. This principle is now generally accepted. (Excepted from the above may be goods handled under special contracts covering stock protection).

"2. All goods under contract on January 6, 1936, invoiced on January 6, 1936, or later, should be billed at the contract price less processing tax. This principle is likewise generally accepted.

"3. In order to give proper recovery to wholesalers, the amount of the processing tax should be rebated on all goods invoiced from October 8, 1935, to January 6, 1936, inclusive. This principle was adopted by original processors, and greater protection than this was given by original processors to secondary processors, in order that they in turn might be in position to give the same ninety-day protection to wholesalers. It is the opinion of the Institute that wholesalers should insist upon a refund from secondary processors of the amount of the processing tax on all goods shipped to them during the indicated ninety-day period, unless the manufacturer can conclusively demonstrate his inability to make such refund."



ABBOTT WINDERS

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Low Labor Cost
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Simplicity--Low Up-keep
Flexibility

Efficient on Large and Small Lots

ABBOTT MACHINE CO.
WILTON, N. H.

Creative Design in Silk Prints

By Consa Howell

SILK prints this year have an entirely new look, occasioned in part by the grouping and irregular spacing of the smartest ones. New print technique and new patterns make them definitely 1936. Motifs styled from commonplace things add a different note and individual charm to many.

Dots are to be seen again, but just in effect at a distance, for when you look at them closely you will find they aren't just dots anymore but tiny top hats, fruits, vegetables and barn-yard animals. These "miniature" prints fall into two groups: "animaux" and "objects."

Animal Prints

Among the animal prints we find roosters, little pigs with curly tails, and ducks. On a daytime silk print minute birds, rabbits and chickens live happily together. White mice and horses as well as birds and fish are to be found. Animals are particularly popular in the domestic market.

Objects Prints

The tiny flower pot design is a Cheney silk crepe fashioned on the dot idea but relying on graduations of size for variation of theme. Bowknots, small flowers, chessmen, keys, sports motifs and the alphabet are handled with the dot technique. Colcombet shows Irish green top hats printed on beige silk crepe de chine.

Pictorial Prints

Most of the designs in the new silk "picture" prints are small or medium sized. Life, landscape and still life objects are used as patterns.

Ducharne shows rings of dancing Brittany peasants, a theme used by Jodelle in her collection. Coudurier has silk prints with tiny berets, branches of coral, threaded needles, stars (a theme always with us in the domestic market), "Paris by Night" and pieces of jig-saw puzzles.

In the home market silk prints likewise include landscapes, newspapers, music notes, and the flying horse motifs launched by Schiaparelli.

The tiny Chinese "picture" print (echoing the Chinese Exhibition in London) is of pure silk crepe by L. & E. Stirn.

Fruit and Vegetable Prints

Vegetables appear on silk crepe and silk shantung grounds. They range from radishes, carrots, beets, peppers to mushrooms and small ears of corn. The domestic market abounds with apples, cherries, plums and grapes in discreet prints on silk grounds. Fruit and vegetable prints appear both for daytime and evening. High fashion houses are veiling them with silk marquisette for evening wear.

Floral Prints

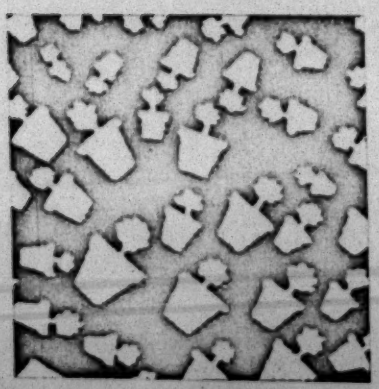
For afternoon and evening the larger more conventional floral prints will be used. Bright flowers on black, white or colored grounds are veiled with silk net.

For daytime, small bright florals, tiny bouquets, or bright spots of single flowers on dark or colored grounds.

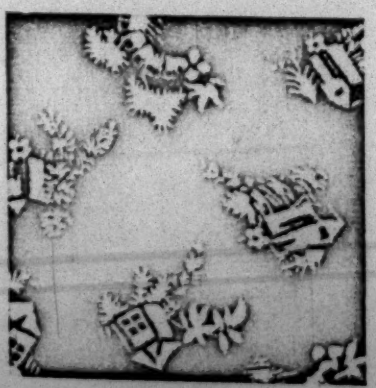
Printed silk satins, both smooth and pebbled appear more frequently than usual. Bouquets of natural flowers and neat patterns of pictorial or geometric type are featured.

A Successful Contest

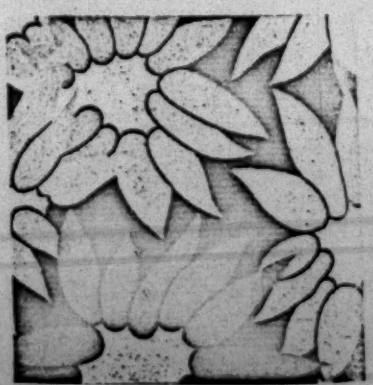
The International Silk Guild, in an effort to encourage American design and to stir up enthusiasm for design among the coming generation, held a contest in which advanced textile students in the New York schools were asked to compete. Twelve of the prize prints were chosen for production by a number of outstanding manufacturers. The floral pattern pictured, a prize print designed by Doris Woodell of Strauben Mueller Textile High School, is being reproduced in both silk flat crepe and silk chiffon by Menke-Kaufman Silk Company. The prize prints were all characterized by youthful freshness



Sample 1



Sample 2



Sample 3

and freedom from tradition. Words of praise to the international Silk Guild for this fine and productive efffort to encourage American design.

Twin Prints

Printed silk taffeta is combined with silk crepe in twin prints for jackets, coats and redingotes. Both florals and geometrics are used. Some fruit and floral silk crepe in the American market have twin printed silk chiffons.

New Print Technique

"Water-color" print technique on silk is endorsed by Ducharne and Coudurier. Near tones of a single color are employed to give a shaded effect with considerable depth and form to the design.

Line prints are shown in the new silks in both foreign and home markets.

Laque prints or stamp prints, as they are sometimes called, are used chiefly on silk taffeta, silk net or silk chiffon. The design is stamped on and usually has a high lustre resembling patent leather. Dots, commas, squares and diamonds are stamped in white, black or color on silk grounds.

Color in Prints

White on black miniature prints appear to have the most distinction in the market. Chinese red and Persian blues on black grounds running a close second. Multicolor treatments and vivid tones are prominent in evening prints. Many lines have tones of gray accented by strong color prints. White on white is achieved through the use of pigment prints. Off-white grounds are new and smart.

New Throwing Plant Expected

High Point, N. C.—Immediate establishment in this city of a silk throwing plant is anticipated by local interests who have closed a deal for a building and who expect to install machinery for operation in the next few weeks.

A capacity of 3,000 pounds of silk per week is to be provided at the start with ample facilities for expansion of that output available as needed, it is stated by Wilton Barnes, who is promoting the venture.

An application for a charter has been made.

New Pants Firm in Winder, Ga.

Winder, Ga.—A new cotton trousers firm, to be known as the Piedmont Manufacturing Company, has just been started here. Incorporation papers have been filed by F. E. Weatherly, H. Peskin, Howard A. Perry and J. Roy Jackson.

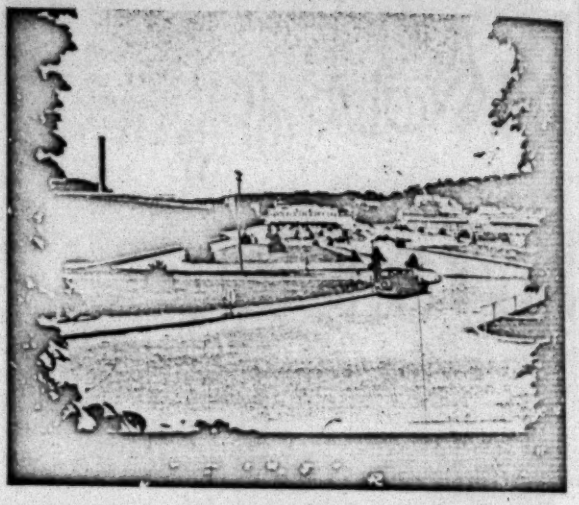
Mr. Weatherly is to be production manager of the new company. He has been in the manufacturing business for about 25 years, and has had a prominent position in the cotton trousers industry of the Southeast.

Howard Perry will be recalled as having operated here for some years under the name of the Winder Manufacturing Company, which organization he liquidated a little less than a year ago.

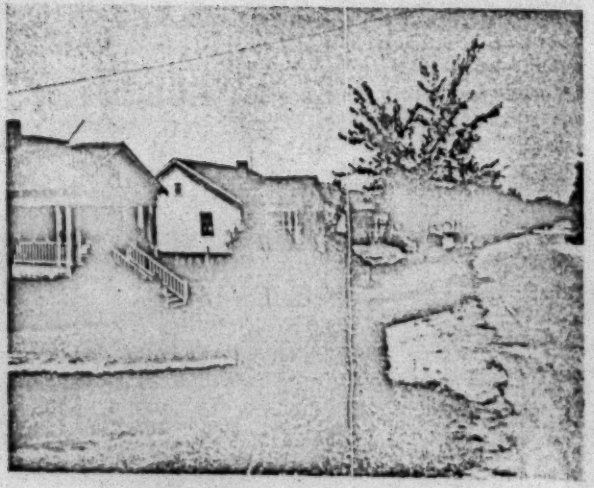
Mr. Peskin is one of Winder's dry goods merchants, and Mr. Jackson has for some years been engaged in the contracting and lumber business here.

Typical Scenes From a

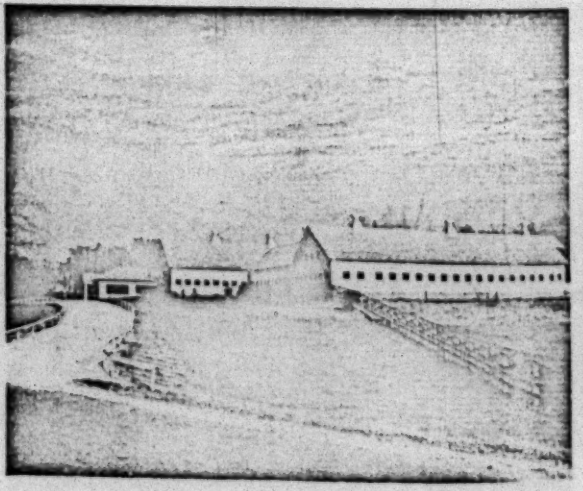
Entering Trion, Georgia, Showing Riegel Trademark



View of Plaza, Showing Glove Plant and Store



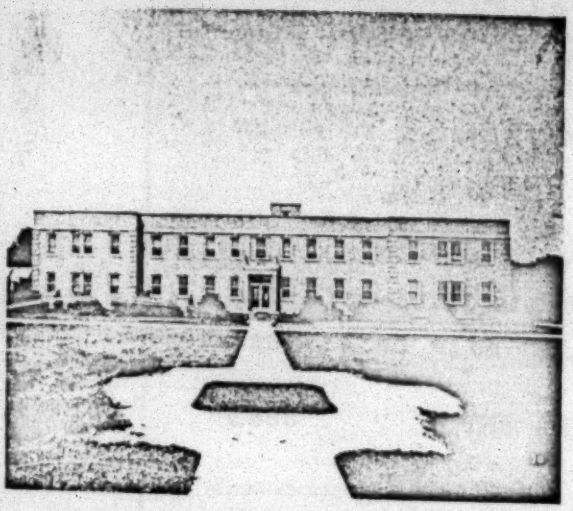
Street Scene at Trion Company



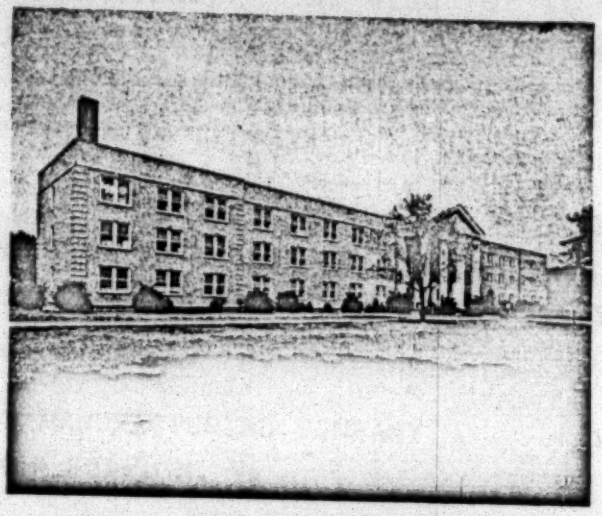
Riegeldale Dairy One of the South's Finest

THE TRION

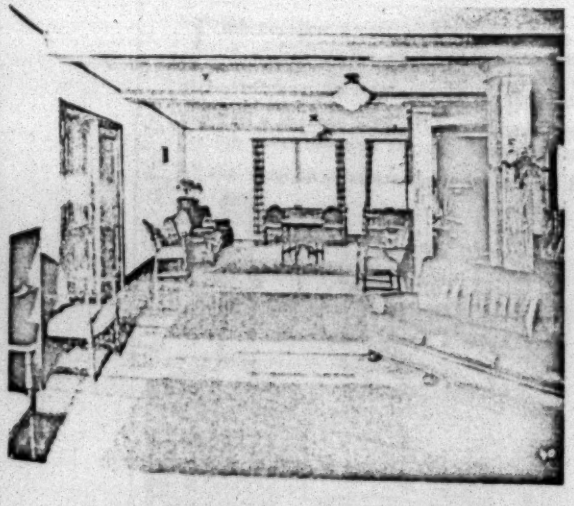
a Beautiful Mill Town



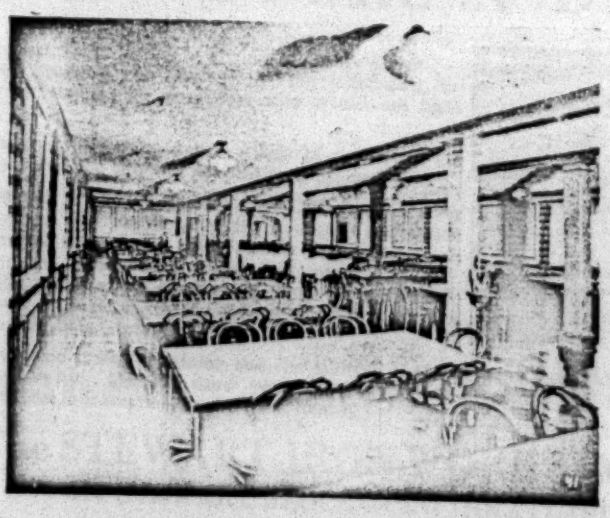
Riegel Hospital, One of the Most Modernly Equipped Hospitals in the South



Leila Riegel Inn



Lobby of Leila Riegel Inn



Dining Hall at Leila Riegel Inn

COMPANY TRION GEORGIA

New Mercury Vapor Lamp

Following the acceptance of high intensity mercury vapor lighting with the 400-watt lamp, the Westinghouse Lamp Company announces a new 250-watt design, described as having an efficiency of approximately 30 lumens per watt, and producing 7500 lumens of light for an average life of 2000 hours. With an overall length of 8 inches and a medium screw base, the new lamp can be operated satisfactorily in existing fixture equipment if of the enclosed type. Since the new lamp can also be operated in any position, it is expected to contribute to a wider application of mercury lighting, the company says.

It is now almost two years since the 400-watt high intensity mercury vapor lamp was placed on the market. Its high efficiency and color quality of the light has found wide acceptance in many industrial fields. There are, however, many locations having ceiling heights of 12 feet or less where this lamp could not be used with entire satisfaction due to the high surface brightness of the fixture. As a result there has been a demand for a light source of similar type but of a lower wattage rating that would be especially suitable for low mounting height installations. The new 250-watt lamp has been designed to meet this demand.

Producing a color of light practically the same as that of the 400-watt high intensity mercury vapor lamp, the new 250-watt size can be combined equally well with incandescent lamps to produce illumination similar to "daylight" in color. In this respect, the new lamp is said to have a slight advantage in economy of operation. Where the 400-watt lamp requires from 800 to 900 watts of incandescent light, or from 50 to 55 per cent more, to produce ilumination of "daylight" color, the new lamp requires but 400 to 500 watts, or 42 to 50 per cent more.

With a single T-9 clear glass bulb, the new lamp is a bit more susceptible to the cooling effects of circulating air. It should, therefore, be operated in enclosing globes to protect it from any drafts and thus to assure maximum light output.

Like the 400-watt lamp, the new 250-watt size is designed for operation on A-C only and then in conjunction with a current regulating transformer designed to meet the particular electrical values of the lamp. These have several taps for adjustment to prevailing line voltage, so supply sufficient voltage for starting the lamp, to protect it from excessive current immediateiy after starting and to stabilize it at the proper operating current. Since satisfactory operation of the 250-watt lamp is so closely allied with proper transformer characteristics, it must be used in conjunction with an approved type, which will have approximately the same physical dimensions as that now used for the 400-watt lamp, except that its electrical characteristics are different.

Annual Meeting of E. F. Houghton & Co.

At the annual meeting of stockholders of E. F. Houghton & Co., Third, American and Somerset streets, Philadelphia, manufacturers of industrial oils and leathers, the following directors were re-elected: Maj. A. E. Carpenter, president and general manager; Louis E. Murphy, chairman of the board; George W. Pressell, vice-president and director of sales; E. A. Carpenter, secretary; Dr. R. H. Patch, treasurer; C. Howard Butler, superintendent bonus than for the preceding year, paid to 325 employees according to length of service. Of the total number of employees at the company's three United States plants, 26 per cent have been employed from 10 to 20 years, and 5 per cent for 20 years or more.

"Which Way America"

(*Continued from page 167*)

of individuals to work and earn in relation to their differing capacities, is essentially incompatible with equality;

"3. Is the public welfare advanced by providing government economic planning for industry and agriculture;

"4. Do we believe that our Federal Government should be limited to powers clearly delegated in a Federal Constitution;

"5. Do we believe that the public welfare is promoted by preserving the States against domination by one central government with consequent bureaucracy and expanded power over all citizens of the country;

"6. Do we believe that Federal and State constitutions should provide for recognition and protection of individual rights against encroachment by agencies of Government, even at the dictates of individuals?

"I believe that upon the answer to those basic and fundamental problems of philosophic belief will depend our individual answers to the question as to which way America should go.

"It is my firm belief that the revival of private enterprise as an immediate goal and the future maximum welfare of this country depend upon preservation of the American System, and that it can be preserved in the following ways:

"1. By maintaining constitutional guarantees.

"2. By preserving freedom of private enterprise, with maximum freedom for the individual consistent with the freedom and right of all others.

"3. By seeking security for the maximum number through increased total national production instead of by legislative decree; and finally

"4. By establishing and maintaining sound government tax and financial policies.

"This American System has not failed. It has not collapsed. It did not break down in depression because of weaknesses or evils inherent in the system.

"Finally, I submit that ample evidence indicates that as we abandon the present national policy and return to the American System that national welfare is promoted."

In approaching his subject as a "conservative," Mr. Sargent said:

"I do not consider the word a term of reproach. I do not believe merely because a policy is termed 'liberal' by its promoters and followers, that it thereby becomes sound and sacred. Conservative, as I understand it, is one who desires to 'conserve,' to preserve, to save all that is good from the past, and to make departures from past policies only as sound reason, instead of hasty analysis or unbalanced emotion, makes such change seem desirable.

"Being a conservative I regret what I consider as unsound departures from the American System. I believe that the present policy is unwise, that in many respects it has abandoned sound principles of economics and political science—fundamentally it differs only in degree from the more 'leftish' policy of the socialists."

Referring to present national policies, Mr. Sargent said:

"As I view it we can state the following as pretty definite conclusions:

"1. There is a basic, underlying plan, which involves primarily increasing the government care of the individual, increasing government planning and control of our economic lives, and, as a corollary to accomplish these ends through the Federal Government increasing suppression of the States as sovereign entities.

"But coupled with this basic plan there is the most amazing inconsistency in policies proposed to secure the ends desired—and also a sublime disregard for the failure of previous policies and willingness to try new ones."

Mr. Sargent recalled that Senator Wagner, in supporting repeal of the prohibition amendment, had opposed breaking down of State authority and the usurpation of authority by the Federal Government. He further quoted the Senator as saying in 1923:

Bitter experience has taught us that no single Federal standard will satisfy the widely diversified communities which make up the United States."

As developed by Mr. Sargent, Senator Wagner now has sponsored one act after another, including the Social Security Bill and the Wagner Labor Disputes Bill, which break down State authority and seek to set single Federal standards for all communities.

"Everlastic" Roll Covering

The "Everlastic" textile roll covering is attracting increasing attention among the mills and the makers report an increasing business in the South. The basic ingredient of the roll is the synthetic rubber compound known as "duprene."

These rolls are manufactured by Roger W. Cutler, of 141 Milk street, Boston, Mass. The company has recently made arrangements for selling the rolls through a large number of roller shops in the East and South. The textile salesmen of Manhattan-Raybestos Company and the United States Rubber Products Company are also co-operating in furnishing information regarding the rolls.

Some of the claims advanced by the manufacturers of this roll is that it it very durable, that it is oil-proof and unaffected by temperature changes, that it is very resilient and that the resiliency of the covers may be regulated as desired. The manufacturers also claim that users of the rolls have been able to materiall reduce their top roll weights. They state further that reduced weight results in better increased yarn strength, lower power and oil consumption, longer life of rolls.

"Bluebonnet Blue"

"Bluebonnet Blue," reflecting the clear violet tint of the state flower of Texas, has been created by Margaret Hayden Rorke, managing director of the Textile Color Card Association, in honor of the Texas Centennial Celebration. This state, rich in historical background, is observing the one-hundredth year of her attainment of independence from Mexican rule with a program of celebrations, climaxing in the Centennial Exposition at Dallas in June.

The official Bluebonnet color has been created by Mrs. Rorke at the invitation of the Texas Centennial Commission of Control, of which Lieutenant-Governor Walter F. Woodul is chairman. It is described as a violet-tinted pastel blue with depth and brightness. "Bluebonnet Blue" is slated to receive wide promotion in Summer fashions, because it reflects one of the smartest trends in the important blue range and is as well a becoming tone, easy to wear. It is equally attractive for sports and evening clothes and also provides a flattering accent to navy or black town costumes in blouses, scarfs, gloves and other accessories.

The bluebonnet, a member of the lupine family, grows wild in Texas and in the spring, the fields of the state are blanketed with these fragrant blue flowers. In some spots, these blooms share space with clusters of prickly pear cactus. It is related that, as the pioneer settlers in the southwest trekked across the plains of Texas in their ox-carts during the latter part of the eighteenth and the early nineteenth centuries, they saw in the springtime acre upon acre of blue flowers, whose petals were shaped like tiny bonnets. The flower was named the bluebonnet," after the headgear of the intrepid pioneer women.

Federal-State Cotton Research Program

(Continued from Page 169)

of plants. The aim is to round up all of the superior germ plasm and wherever something outstanding is found, such as a superior strain of cotton or corn, or outstanding individuals or families of dairy cattle or beef cattle, these will be increased and their progeny contribute to improved quality and increased production in American agriculture.

Mills Get Government Orders

Southern mills figured prominently in the latest list of contracts for cotton goods that were announced by the Procurement Division of the Treasury Department. The goods were purchased for the Works Progress Administration.

The list of contracts follows:

Invitation No. 56, chambray (type A), 28-inch, Riverside & Dan Dan River Cotton Mills, 187,500 yards; Avondale Mills, care Southeastern Cottons, Inc., 75,000 yards; Batavia Mills, Inc., 250,000 yards; Cone Export & Commission Co., 250,000 yards; Durham Cotton Manufacturing Co., care Joshua L. Baily & Co., 160,000 yards; Wennonah Cotton Mills, care Haywood, Mackay & Valentine, 250,000 yards; Pepperell Manufacturing Co., 130,000 yards.

Invitation No. 56, chambray (Type A), 36-inch. Cone Export & Commission Co.., 550,000 yards; Pepperell Manufacturing Co., 425,000 yards; McCampbell & Co., 300,000 yards.

Invitation No. 57, bleached muslin (85x62). Cannon Mills Co., 7,500 yards; Cohn, Hall, Marx Co., 68,750 yards; M. Lowenstein & Sons, Inc., 1,448,000 yards; Prince Lauten Corp., 308,000 yards; Pepperell Manufacturing Co., 476,250 yards.

Invitation No. 58, birdseye, Cannon Mills Co., 146,000 yards; Georgia-Kincaid Mills, 373,000 yards; Parker, Wilder & Co., 226,000 yards; J. P. Stevens & Co., 250,000 yards; George Wood & Sons, 740,000 yards; Riverside & Dan River Mills, 50,000 yards.

Invitation No. 59, bleached sheeting (69x58), 42-inch, Cone Export & Commission Co., 100,000 yards.

Invitation No. 59, unbleached sheeting (64x64), 45-inch, Cannon Mills Co., 1,192,500 yards; Columbus Manufacturing Co., 125,000 yards; S. B. Marks & Co., 195,000 yards; Batavia Mills, Inc., 157,500 yards; McCampbell & Co., 425,000 yards; Pepperell Manufacturing Co., 49,000 yards.

Invitation No. 60, terry toweling, Blair Mills, 50,000 yards; Mooresville Cotton Mills, 700,000 yards; Cannon Mills Co., 136,500 yards; Carolina Cotton & Woolen Mills, 21,000 yards; Muscogee Manufacturing Co., 100,000 yards.

Invitation No. 61, huck toweling, Cannon Mills Co., 2,025,000 yards; Carolina Cotton & Woolen Mills, 41,000 yards; Georgia-Kincaid Mills, 30,000 yards; Parker, Wilder & Co., 166,000 yards; George Wood Sons & Co., 12,000 yards.

Invitation No. 62, whipcord (54x34), Eagle & Phenix Mills, care Haywood, Mackay & Valentine, 50,000 yards; Hesslein & Co., Inc., 200,000 yards; Lane Cotton Mill Co., 180,000 yards; Rosemary, Inc., 75,000 yards; Sanoset Cotton Mills, 52,000 yards; Swift Manufacturing Co., 150,000 yards; Cone Export & Commission Co., 337,000 yards.

Invitation No. 63, cottonade suiting, Lane Cotton Mill Co., 405,250 yards; Rosemary, Inc., 3,000 yards; San

oset Cotton Mills, 46,000 yards; Cone Export & Commission Co., 315,000 yards; McCampbell & Co., 37,500 yards.

New Du Pont Products

The Dyestuffs Division of E. I. du Pont de Nemours & Co. has just announced the addition of seven new products, to be known as "Pontachrome" Azure Blue BR, "Sulfanthrene" Orange RC Paste (patent applied for), "Sulfanthrene" Brown GC Paste (patent applied for), "Sulfanthrene" Scarlet GC Paste (patent applied for), brilliant Avirol L-200 Paste (patented), Shirlan A (patent applied for), and Shirlan Extra.

"Pontachrome" Azure Blue BR is an important addition to the division's line of chrome colors for use in dyeing bright, medium shades of blue on wool rawstock, yarn and piece goods. It is expected to be particularly valuable as a rawstock color for woolens because of its good fastness to milling. It may be dyed by the top chrome, chromate or bottom chrome process to give dyeings of good fastness to water, perspiration, fulling and washing. "Pontachrome" Azure Blue BR will be used alone as well as for shading other chrome colors of similar properties.

"Sulfanthrene" Orange RC Paste (patent applied for), "Sulfanthrene" Brown GC Paste (patent applied for), and "Sulfanthrene" Scarlet GC Paste (patent applied for) are vat colors especially designed for printing delustered rayon. They may also be printed on bright rayon and acetate fiber materials with satisfactory results. Due to the excellent penetrating and leveling properties of the company's new printing types, perfectly level and speck-free prints may be obtained on delustered rayon. Also, the resultant prints exhibit very good fastness to chlorine, light and washing, representing shades of bright red orange, dull red brown and brilliant scarlet, respectively.

Brilliant Avirol L-200 Paste (patented) is a new addition to the line of fatty alcohol sulfate textile softening agents. It is designed to give surface smoothness in addition to the full, pliable finish characteristic of the Avirol products. This new product is said to be free from danger of rancidity or discoloration during calendering or during the storage of the finished fabrics. Brilliant Avirol L-200 Paste is particularly suited for finishes without starch in which a smooth, silky surface is desired, and also for starch finishes requiring a very pliable smooth finish. The lubricating properties of this product are very effective in heavy starch finishes which must be pliable and smooth.

Shirlan A (patent applied for) and Shirlan Extra are recent additions to the division's line of fine chemicals. The former is important for use in conjunction with "Aridex" WP (patent applied for in the treatment of goods to give them mildew-proof and water resistant properties, these two effects being unusually resistant to removal by weathering, moderate washing and dry cleaning. Shirlan Extra finds its chief use in mildew-proofing heavy cotton fabrics which are subjected to weathering and it is also admirably suited for application to wool yarns and fabrics. It is not recommended for use with "Aridex" WP.

"Pontachrome," "Sulfanthrene" and "Aridex" are registered trademarks of E. I. du Pont de Nemours & Co., Inc.

New silk prints feature pictorial designs such as pastoral scenes, children at play and wine harvests. These are very tiny and are in monotones of two or three colors at the most.

Sanitation Promotion

A new method of bacterial and odor control, of interest to engineers, health officials, and housewives, has recently been developed by Herman Seydel, of Jersey City, N. J., who was granted a patent on the process. It involves the use of chlorinated hydrocarbons, which are said to be capable of controlling bacterial life in sewage and other organic wastes. Chlorinated hydrocarbons are described as a liquid which has a rather pleasant odor, as being non-corrosive, non-hazardous, and harmless to man or animals. The product developed by Mr. Seydel is known as Cloroben.

In industrial or other communities where sewer systems are not available, privies, septic tanks and drainage, septic toilets, chemical toilets, kitchen and bath wastes, etc., are often the source of unpleasant odors and unhealthy conditions, which serve as a breeding place for flies, mosquitoes ,and other disease breeding insects. In septic toilets (LRS type) Cloroben is said to utilize the principle of odorless digestion of the sewage, and keep the effluent or overflow from developing obnoxious odors of the hydrogen sulphide type. In chemical toilets where caustic compounds are used to sterilize and liquify the sewage Cloroben is said to control the corrosive ammoniacal gases.

The makers of Cloroben report that laboratory experiments and practical demonstrations in sewage treatment plants have shown that this product offers effective means for controlling plant odors by eliminating their source. It is claimed that Cloroben controls all odors from that of a privy to the entire flow of a disposal plant. It is also described as an effective deodorant in wash rooms, toilets, drainages and other purposes where antiseptic and deodorizing qualities are needed. Housewives will find it useful in garbage cans, it is claimed.

In addition to control of domestic problems the use of Cloroben is being studied in such industrial processes where uncontrolled bacterial activity is deleterious to the product.

This material is manufactured and distributed by the Cloroben Corporation of New Jersey.

New Process Tax Bill Expected

Washington.—A processing tax, imposed as an excise duty on all commodities which benefit under the new Farm Bill—Soil Erosion Act, to raise approximately 500 million dollars, will be introduced in the House, probably on or before March 15th.

The form in which the levy will be imposed and its amount are not official, but it is certain that a tax bill will be introduced and the probable date is official, having been announced by Speaker Byrnes during his conference. The speaker declined to amplify his statement.

Representative McCormick, Massachusetts, member of the Ways and Means Committee and an authority on taxation, said: "I cannot discuss what form the tax bill will take. It is my personal view that the processing tax is to be revived, probably at a lower rate than under the AAA, but on a much wider base. An excise tax seems a fair way to levy."

Representative Fuller, Arkansas, also a member of the Ways and Means Committee, said: "We are certain in our own minds that 500 million will be the limit of the levy and as for me I am confident that the impost will take the form of an excise tax to be imposed on agricultural commodities.

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The Determination Of Twist

IN considering the question of twist in yarns there are two different kinds to be taken into account, namely, the twist in single yarn and the twist in two-fold yarn. In single yarn there is only one strand to consider and as all spindles in worsted spinning run clockwise such twist is usually described as "right." Normally a two-fold yarn consists of two single threads, the turns of which are inserted in a clockwise direction, which are doubled together by a spindle running in the reverse direction. Therefore, in analyzing a two-fold yarn it is necessary to determine the number of turns per inch contained in each single yarn and the number of turns inserted to bind the two yarns together. To determine the latter is a simple operation, since twist testing machines are now more or less standardized. They are usually constructed with a pair of jaws at the end of a shaft which can be rotated in such a way that for every revolution of the handle the shaft receives 10 revolutions. It is possible to test any length of yarn up to about 18 in., but 10 in. is the length generally chosen because in that case every revolution of the handle represents one turn per inch in the yarn under examination. The untwisting of the two-fold yarn does not in any way disturb the single threads of which it is composed, and when all the two-fold twist is taken out the single threads still contain their original amount of twist. By this means the exact number of turns in the 10 in. of yarn can be ascertained.

Testing the twist in the single thread is a different proposition and as it is difficult to observe with the naked eye when all the turns have been taken out, a magnifying glass must be used in this process. It differs from the testing of two-fold yarn in that every length of single thread examined is entirely disintegrated in the process. This is due to the fact that in order to determine when the turns have all been taken out it is necessary to insert a pin between the fibres close to the fixed jaw and move it right up to the rotating jaws which hold the other end of the yarn. This procedure makes it impossible to test any long length of single yarn at one time, because, if the length of yarn being tested is greater than the length of the fibres of which it is composed, their entire separation causes the yarn to break and prevents an accurate estimation of the number of turns in that length. Theoretically, this would mean that few worsted yarns of merino quality could be tested in lengths exceeding 2½ in., and that most cotton yarns could not be tested if the length between the jaws exceeded 1 inch. Many woolen yarns contain much shoddy and are difficult to test, and for testing these and single cotton yarns, a standard machine has been introduced in which the fixed and rotating jaws are permanently set 1 in. apart. If more testings of long crossbred yarns were carried out a machine with jaws 5 in. apart would no doubt be established as a standard.

(Continued on Page 196)

Personal News

L. J. Nunn, of Columbus, Ga., is now night overseer carding and spinning, Geneva Cotton Mills, Geneva, Ala.

C. G. Joiner of Union Springs, Ala., is now overhauling Cowikee Mill No. 2, Eufaula, Ala.

Luther Vinson has been promoted from card grinder to overseer carding and spinning, second shift, Cowikee Mill No. 1, Eufaula, Ala.

Cliff Atherton has been promoted from second hand to overseer day carding and spinning, Mill No. 1, Eufaula, Ala.

Clyde Purvis has been promoted to assistant overseer spinning, Geneva Cotton Mills, Geneva, Ala.

Lee Whitehead has been promoted from card grinder to assistant overseer carding, Geneva Cotton Mill, Geneva, Ala.

C. A. Rudisill, secretary and treasurer of the Carlton Yarn Mills and the Nuway Spinning Company, Cherryville, N. C., has returned home after spending several weeks in Florida.

Charles Menafee has resigned as Southern representative representative for Iselin-Jefferson Company, with headquarters in Charlotte, to become sales agent for the Pepperell Mfg. Company. He will be associated with the New York offices.

John M. Zurn, Jr., formerly connected with the E. F. Zurn Company and the Quaker City Chemical Company in various capacities of manufacture sales and development, has recently joined the sales and technical staff of Quarker Chemical Products Corporation, in a technical and sales capacity. Mr. Zurn's twenty years of practical experience, combined with his technical training in textile schools, fit him ably to carry on this work.

Announcement is made by E. F. Houghton & Co., manufacturers of oils and leathers, Philadelphia, that L. D. Holland, formerly sales manager of the western division has been made manager of research development with headquarters in the general offices, Philadelphia.

A. A. Miller, formerly head of the Cincinnati, Ohio, office, has been promoted to the position of western sales manager, with headquarters in San Francisco, Calif.

William P. Jacobs, of Clinton, S. C., who has been acting as president of Presbyterian College for the past eight months, has been formally elected to that position by the board of trustees. He is secretary for the Cotton Manufacturers Association of South Carolina and secretary of the Print Cloth group of cotton manufacturers.

J. H. Windle, who recently resigned as vice-president of the Standard Mill Supply Company, Providence, R. I., has established a business of his own to handle used machinery and equipment. He is an experienced machinery man, having served as sales agent for the Woonsocket Machine and Press Company, and the Fale and Jenks Machine Company. His new company will be known as J. H. Windle & Co.

Forty Years in Belting Business

In July of this year, J. A. Schachner, Sr., president of the Schachner Leather and Belting Company, Charlotte, N. C., manufacturers of belting and leather products used by the textile industry, will begin his fortieth year as a manufacturer of these products. Starting with the Charlotte Supply Company, later foreman of the old Estate of Edward R. Ladew, he became one of the organizers of the Charlotte Leather Belting Co. Through the years he successfully became general manager of the Moloney Belting Company, then later, of the Fried-Lang associated companies. From a modest beginning the Schachner Leather & Belting Co. has enjoyed steady growth, and last year, the addition of more machinery necessitated their moving to their new quarters at 1131 South Mint street, where they have two floors of over 5,000 feet of floor space. Associated with Mr. Schachner are J. A. Schachner, Jr., vice-president, and J. E. Turner, secretary and treasurer. Incidentally, Mr. Schachner is the father of nine living children, some of whom are with him in the business.

J. A. Schachner, Sr.

M. D. Long Has 83d Birthday

M. D. Long, secretary-treasurer of the Asheville (N. C.) cotton mills, recently celebrated his 83d birthday—after 48 years as a merchant and business man in Asheville.

The encroachment of years does not interfere with his active interest in business and Mr. Long still goes to his office each morning continuing his duties as secretary-treasurer of the Asheville Cotton Mills.

For more than 50 years, Mr. Long has been a member of the Masonic lodge, for 39 years he has been a trustee of the Beth Ha-Tephillah Jewish Temple. He was married to Miss Carrie Cone of Baltimore, in 1884, and they came to Asheville in 1888.

Mr. Long formed a partnership with J. Y. Jordan, Sr., and Robert Graham to operate a factory for the manufacture of brogan shoes and horse collars. He opened a department store here as a commissary for the Asheville Cotton Mills, and in 1910 he sold that business, accepting his present position with the firm.

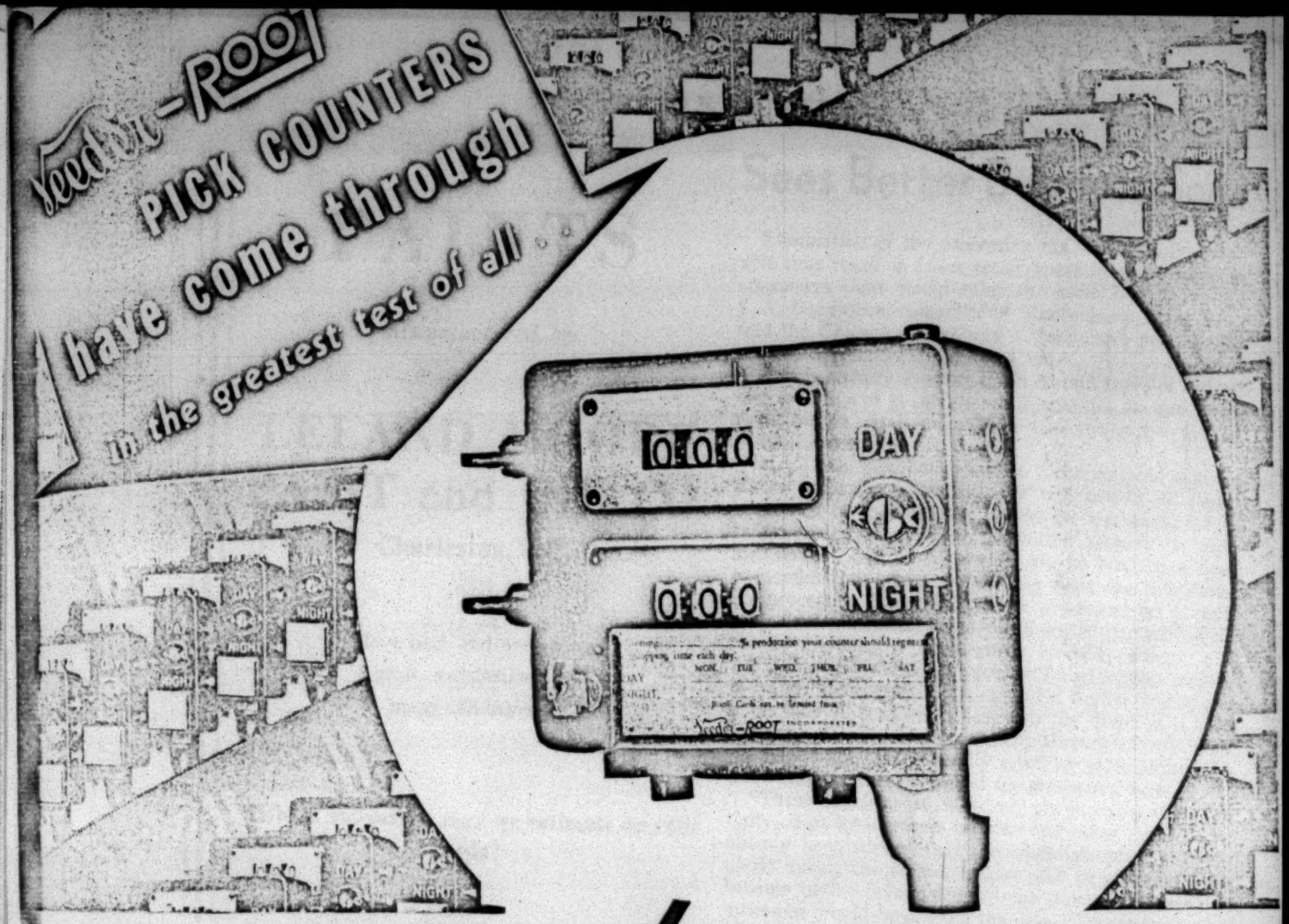
Textile Fraternity To Meet in Charlotte

Phi Psi, the largest textile fraternity in this country, will hold its National Convention in Charlotte on March 27th, 28 and 29th. The sessions will be held at the Charlotte Hotel.

Between 150 and 200 delegates and members are expected to attend the meeting. These delegates will represent chapters from New England through the South to Texas.

Local arrangements for the convention are being handled by the following committee:

A. R. Thompson, general chairman; J. V. Killheffer entertainment; T. W. Church, finance, and F. W. Warington, publicity.



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Sees Better Business Soon

Elimination of the processing tax "will within reasonable time result in lower retail prices of cotton goods to consumers than would otherwise have been the case," J. A. Donaldson, controller of Montgomery Ward & Co., told the Chicago Controllers' Association's monthly dinner meeting at the Hamilton Club.

This is already showing up in certain types of national distribution and in certain retail localities, he said. Such reduction in retail prices will to some extent increase consumer demand.

Mr. Donaldson believes that "with natural economic forces operating normally, this will benefit all parties concerned in the business cycle—the consumer, the retailer, the processor, and the cotton grower. It might also be said that such benefits will be built on a sound economic basis which has hardly been the case during the processing tax period." The processing tax in many cases had amounted to as much as 10 per cent of the cost of the finished cotton goods, he said, adding:

"It has been a difficult problem for processors properly to adjust their prices for this added burden and to pass it on fully to retailers. Although the situation is badly confused because of government threads of new taxes, processors are now generally granting price adjustments downward for the amount of the processing taxes.

"These adjustments, however, are in many cases partially offset by increases in labor and other costs. It has already been proven that the wholesale price of cotton goods during the coming season will be generally lower because of the invalidation of the processing taxes than otherwise would have been the case. Processing tax adjustments downward are being made even though general price increases for spring goods were in the offing prior to the elimination of the tax.

"It will take some time for the effect of this situation to work itself out in the retail prices of cotton goods. Other factors, such as competition and strengthening of consumers demand are also involved."

Mr. Donaldson discussed in detail the subject of processing tax refunds. Many questions were asked following his talk and a difference of opinion as to the possibility of getting a tax refund from the Government was reflected.

Mr. Donaldson said that, although it would be reasonable to expect a refund of the amount of the tax in January 6th inventories, since retailers paid a floor tax when it went into effect, it is unwise to place any dependence on obtaining a refund of suc htax from the Government. Tax refunds from the Government are almost impossible to obtain at this time regardless of the circumstances or the merits of the case, he said.

He referred to the immediate need at January 6th for an adjustment between processors and retailers on all taxes collected by the processor but not yet paid to the Government.

Thinks Refunds Possible

A State street controller voiced the belief that retailers had a good chance to collect refunds from the Government on the basis of January 6th inventory and he lauded the Controllers Congress for advising retailers to take inventory that day.

The amendment to the AAA which protects the retailers' interests is likely to be upheld, he believes. His thought is that retailers who file a claim against the vendor will be able to prove to the Government that the

(*Continued on Page 198*)

Georgia Group To Meet

The Spring meeting of the Textile Operating Executives of Georgia will be held on Saturday morning, March 14th, in the Chemistry Building of the Georgia School of Technology, Atlanta, Ga. Carding and spinning topics will form the basis of the round-table discussion which will constitute the major portion of the meeting, according to Robert W. Philip, editor of *Cotton*, who is secretary-treasurer.

The meeting will open at 9:30 a. m., Saturday morning, March 14th, and will be adjourned before luncheon. The first feature will be a short address by Thomas H. Quigley, director of industrial education, Georgia School of Technology, which will be followed by practical discussion on carding and spinning, according to a questionnaire, each question of which has been assigned to several men for report. Frank L. Ausbury, Jr., superintendent, Hillside plant, Callaway Mills, LaGrange, will conduct the carding discussion; and John B. Jones, superintendent, Shawmut plant, West Point (Ga.) Manufacturing Company, will conduct the spinning discussion. A copy of the questionnaire to be discussed is appended:

The discussion will be based on the following questions:

QUESTIONNAIRE ON CARDING AND SPINNING

Carding

1. What is the best way to get small white neps out of cotton? (These appear in the cotton fiber in the form of small flakes about the size of the head of a pin and can be pulled apart and straightened out and found to be made up of cotton.) Do you find that the amount of these in the cotton varies from year to year or locality to locality?
2. Please state the grade and staple of cotton you are running, and tell us what type of beater is best on it on the finisher section of a one-process picker, and how close it should be set. Why? Do you make a difference for different staples? Why?
4. Discuss card grinding along the following lines: What are your counts of wire, and at what speeds are the cylinder, doffer, and both grinding rolls operated? What count of emery do you use? How do you clean the emery rolls and how often do you resurface them? How long does it take to put a satisfactory point on wire in average condition? *Notes* If you use the regular type of emery, discuss these questions on that basis, but if you have had experience with the new solid grinder roll, please give us your experience along these lines with it.
5. Has anyone made actual tests to determine the effect on breaking strength resulting from worn-out card clothing; that is, clothing which has begun to shed wire badly. If so, please give full report.

(*Continued on Page 198*)

Cotton Goods Markets

New York.—Business in cotton goods showed moderate improvement during the week. Sales of print cloths were larger than during the previous week and it was expected that sales would equal production. The price situation showed little change but the entire gray goods market was firmer. On the 80s squares an advance of one-sixteenth cent was in effect after good sales. Due to the fact that more buyers were finding it necessary to cover and it is being realized that a latent demand is strong enough to force further buying soon it was felt that the position of the mills was somewhat stronger.

Broadcloth sales were not large, although a good sized sale of March deliveries of 100x60s was booked at 8¼c. Actual spots usually were held at 8¼c with later contracts available in some sources at even money. The 80x60s were quiet at 6 1-16c.

Sales of sheetings still were limited, although some houses reported slightly better volume. Prices generally were strong and on a few styles a number of houses had advanced their asking prices.

Inquiry for pongees, both combed and carded, showed some improvement, and it was reported that while asking prices had not been changed, some shading had been done. Thus the 38-inch 72x100s combed were very generally quoted at 9¼c, although some business went through at 9⅛c, said to have been placed in the South. The 38-inch 72x100s carded were moved at 8⅛c in one or two deals, although at the close the asking price was uniformly 8¼c. On the 37-inch 5.60-yard 64x84s carded, it was reported that 7½c was the lowest possible price, with several holding for 7¾c.

There was some buying of lawns which apparently came from converters who were not completely covered against their regular needs and who feared that the government buying might bring both a shortage and an advancing price trend.

In the rayon cloth markets it was reported that pigmented yarn taffetas were in active call for the near shipments.

Print cloths, 27-in., 64x60s	4
Print cloths, 28-in., 64x60s	4⅛
Gray goods, 38½-in., 64x60s	5½
Gray goods, 38-in., 80x80s	7½
Gray goods, 39-in., 68x72s	6¼
Brown sheetings, 3-yard	8¼
Brown sheetings, standard	8½
Tickings, 8-ounce	18
Denims	14
Brown sheetings, 4-yard, 56x60s	7½
Dress ginghams	16
Staple ginghams	8½

Cotton Yarn Markets

Philadelphia, Pa.—The demand for cotton yarns was spotty last week and prices continued to show a good deal of variation. The market continued to suffer from the threat of further taxes on raw cotton and the fact that the raw cotton situation is being affected by the sales of cotton to be made from government holdings. On the whole most spinners reported that they found the situation less active than during the preceding week. Mills that had made good sales of both carded and combed yarns to knitting mills during the previous week found that they got very little additional new business during the week. In some instances, however, mills had enough new business on hand to induce them to be firmer on their prices.

Carded knitting demand has been confined to small contracts, less than 5,000 pounds each, which run for a few weeks ahead. Some sellers say their customers are not buying in the up-state market because they are not obtaining new goods business, but others attribute it to the fear of retroactive excise taxes which may increase contract yarn prices several cents a pound. At any rate there has been little new business up-state this week; shipments on old orders are fair. Shipments of dyed combed yarn for tuck stitch use are large but this is on old contracts.

Mercerizers are making fair shipments on old contracts but little new business is passing. These concerns have orders ahead that they booked late last year, but since that time shipments have been larger than new orders with most sellers. Prices of processed yarns are unchanged at 68c basis 60s two-ply, although there have been rumors of spot lot transactions for small amounts at slight concessions.

There has been a better demand for yarn from the outwear trade, many of these knitters turning to cotton this season because of high prices asked for all-worsted. Some spinners produce a cotton spun merino yarn for this trade, which has been selling well.

Index To Advertisers

Prison Goods an Issue In Tennessee Campaign

Nashville, Tenn.—The convict labor contract system has become one of the major pre-primary issues of this State. Senator George H. Cate, gubernatorial candidate, has helped to lift the subject from obscurity. The pre-primary discussions which are in progress lead to the conclusion that the prison contract system is on its way to extinction.

Governor McAlister, who had been instrumental in killing the recent legislation which aimed to discard the exploitation of prisoners for private profit, has called upon the Prison Industries Reconstruction Administration for a survey of the State's penitentiaries. This is reported to be the first evidence of interest the Governor has taken in the direction of working out a State-use system. The P. I. R. A. never injects itself in State prison problems unless invited to do so.

Given "A" Listing

Raleigh, N. C.—Fourteen textile mills are among the twenty-nine manufacturing concerns in the State which were given grade "A" sanitary and safety records in January by the State Department of Labor. The textile firms were Aberfoyle Manufacturing Co. of Belmont, Amazon Cotton Mills of Thomasville, Carlton Yarn Mills of Cherryville, Durham Hosiery Mills No. 7 at Chapel Hill, Golden Belt Manufacturing Co. of Durham, Hannah Pickett Mills at Rockingham, Ledbetter Manufacturing Co. of Rockingham, Peerless Manufacturing Co. of Lowell, Ragan Spinning Co. of Gastonia, Rhyne-Houser Manufacturing Co. of Cherryville, Textiles, Inc., Meyer Mill at Gastonia, United Spiners Nos. 1 and 2 at Lowell and No. 3 at Dallas, also Chatham Hosiery Mill, Inc., of Siler City, Golden Belt Manufacturing Co. of Durham, and Hatch Full-Fashion Hosiery Mill at Belmont.

Estimates Larger Indian Cotton Crop

A cotton crop of 4,752,000 bales of 478 pounds each from 25,025,000 is expected in India this year, according to latest official estimates cabled to the Bureau of Agricultural Economics by Agricultural Commissioner P. K. Norris in Bombay. This production estimate represents an increase of about 21 per cent compared with the revised estimate of 3,935,000 bales for the 1934-35 crop made at this time last year, but it is only 18 per cent above last season's unrevised final estimate. The crop last year is officially estimated at 4,023,000 bales from 23,830,000 acres. The average for the five years ending with the 1933-34 crop was 4,050,000 bales from 24,015,000 acres. The final estimate of this year's crop may be slightly higher than the current estimate, provided weather conditions and insect pests do not damage the crop. The production trend in India has been upward for several years.

Classified Department

Four Carolina Mills Secure State Charters

Raleigh, N. C.—Secretary of State Stacy W. Wade has issued four charters for the following textile manufacturing establishments:

Associated Mills, Inc., of Charlotte, which will make and sell textile materials under 1,000 shares of authorized capital with three shares subscribed by Frank K. Sims, W. A. Mason and A. R. Grant of Charlotte.

W. M. Hall & Co., of Belmont, which will make cotton, yarn, rayon and by-products under authorized capital of 1,000 shares of stock with $250 worth subscribed by W. M. Hall, C. G. Wilson and Mrs. W. M. Hall, of Belmont.

Burlington Dyeing & Finishing Co., Inc., of Burlington. Authorized capital stock of $100,000. Subscribed stock of $300 by W. S. Coulter, L. C. Allen and Dorothea Pennington, all of Burlington.

The Premier Silk Mills, Inc., of High Point, which will manufacture textile fabrics with an authorized capitalization of $250,000. R. B. Terry, J. P. Rawley, Earl N. Phillips and H. A. Knight, all of High Point, are the incorporators.

Neely Cotton Mills Sold to J. C. Cloninger

York, S. C.—The Neely Cotton Mills, which have been closed since last April, were sold by W. Bedford Moore, Jr., of Columbia, as trustee, to James C. Cloninger of Gastonia, N. C., and associates. The price of the transaction was not made public. After the sale Cloninger said that the mills would be reopened for operations in about 30 days. The mills, which manufacture soft twist yarn, employ about 230 persons when running on full schedules.

Move to Reopen Cotton Mill at Pelham, Ga.

Pelham, Ga.—After four years inactivity, possibility of the reopening of the Consolidated Textile Corporation, cotton mill here, looms following a survey made by Georgia representatives of that company. Operation of the mill would mean employment for a minimum of 500 persons, with a weekly payroll of not less than $5,000. Tentative plans call for two shifts of about 300 workers, with a possibility that it will be increased to three shifts later on. W. H. Hardean of LaFayette and four spinning and weaving experts spent two days here this week making estimates of the cost of reconditioning machinery and the mill village.

Marlboro Splitting Stock 5 for 1

Capital stock of the Marlboro Cotton Mills, McColl, S. C., will be split five fo rone, it was stated by T. Hall Keyes, a director of the company. Approval of the action was obtained at a special meeting of stockholders, held Thursday.

The change will be brought about by reducing the par value of the 22,870 shares of stock from $20 to $4. As a result, the number of shares will be increased to 114,350.

The Determination of Twist

(Continued from Page 184)

For seasons not well known variations in two-fold twists are more prevalent than in single yarns. It is possible that a 10 per cent variation in twist in single yarn will not show to the same extent as a 10 per cent variation in the two-fold yarn, when incorcorparted in the woven fabric. Neither of these variations will show in the grey fabric, but as an 8 per cent variation in a two-fold yarn will make a very definite bar in the cloth, it is surprising that bars in single weft are so unusual There is very definite evidence that a two-fold yarn made from hard twisted single yarns and a two-fold yarn made from single yarns which are 15 per cent softer, will make a very perceptible bar if they are woven together in the same piece. The percentage variation in twist which will show in a piece woven from single yarn is not known, although it can be said that it is only on very rare occasions that faults in woven fabrics are traced to irregular twisting on the spinning frame.

There is another factor which greatly reduces the possibility of a fault in single yarn showing after it has been folded. If for example a whole spinning frame has been inserting in the yarn the wrong twist, it is nearly certain that some of the two-fold bobbins will contain yarn with both hard and soft twisted single threads, but, if only one spindle is at fault, it is very probable that when that spool is taken to the twisting frame it will be folded with yarn from a perfect bobbin. If the faulty bobbin is 10 per cent wrong, the appearance of the two-fold yarn will be equivalent to one in which there has been a 5 per cent error in both yarns.

In two-fold yarns an 8 per cent variation in twist shows up in the woven fabric far more than an 18 per cent variation in counts. This is due to the apparent variation in the color of weft bars caused by the twist altering the angle of reflection. At first sight this is difficult to reconcile with the presence of weft bars caused by twist in the single yarn, but on careful examination it will be realized that although the respective strands of the yarn are not altered in any way in relation to the light, the fibres of each strand are altered just as much as if the twist of the two-fold yarn itself had varied.

When yarn has not been drafted suitable to the length of the fibres and the hardness of the roving, it inevitably becomes "twitty" and the twist accumulates in the thin places. Where the variations extend to about a yard in length, it is very probable that some factor in drawing is responsible for the variations. It may be that there are too few drawing processes or too few doublings, but it is more likely to be caused by unsuitable drafting at the roving or slubbing frames. If it were possible to weigh short lengths of rovings, a thick place might be weighed against a thin place, and it is possible that the resultant weights would not reveal such a wide discrepancy as would be expected from general observation. The safest

system, therefore, is to take the turns per inch of the thick and thin places alternately and compare the average turns in a series of 10 or 20 tests. Such figures give remarkable results, they show that yarn may have as much as 18 turns per inch at one place and as few as five in a portion within six inches of it.—*Textile Recorder.*

Baylies is Naumkeag Officer

Salem, Mass.—Lincoln Baylies, of Boston, was elected assistant treasurer of the Naumkeag Steam Cotton Company at a meeting of the board of directors held in Salem.

Mr. Baylies, who will assume his new duties immediately, comes to the company directly from the Nashua Manufacturing Company, with which he has been associated for many years.

He entered the cotton textile industry in the Amoskeag Manufacturing Company at Manchester, N. H., in 1915. In 1919 he went to the Nashua Manufacturing Company in Nashua, N. H., later going to Amory Brown Company, selling agents for the company in New York. In 1923 he became one of the Boston partners in that firm. Later, the Nashua Manufacturing Company organized its own selling force. In 1930 Mr. Baylies became associated with the company in its Boston office, in an executive capacity.

J. P. Maguire & Co., Officers Elected

The board of directors of John P. Maguire & Co., Inc., New York textile factors, made known the election of officers, as follows:

John P. Maguire, president; Frederick H. Wandelt, John H. Jephson, Howard J. Stieb, Snelson Chesney and William H. Bischof, vice-presidents; Louis J. Moran, secretary; William A. Murray, treasurer; Robert B. Matthews, assistant secretary, and Lester Prink, assistant treasurer.

Mr. Maguire inaugurated the Textile Banking Company 10 years ago, and until recently served as its president. All of the other officers were associated with him as officials of that company.

Temporary offices of the Maguire Company are on the 21st floor of the New York Life Building, with permanent quarters being prepared at 370 Fourth Avenue, in the 26th street corner of the same building.

Mr. Maguire and Mr. Jephson are in Miami, Fla., on a vacation trip.

OBITUARY

DAVIVD LOW

died at his home following a brief illness. Mr. Low was 56 years old.

He is survived by his widow; one son, David Low; and his mother, Mrs. Louise T. Low, of Gloucester, Mass.

Mr. Low was resident engineer here during the construction of the American Enka plant. He was a native of Gloucester, Mass., but had lived in Asheville for the past three years.

He was educated at Cushing Academy, Asbronham, Mass., the Massachusetts Institute of Technology, and at an engineering school in London, England. He also was connected with the construction of the Riverside and Dan River Cotton Mills, at Danville, Va., the American Chattilon Company plant, Rome, Ga., Owen Glass Company, Toledo, Ohio.

Sees Better Business Soon

(*Continued from Page 188*)

January 6th inventory represents a tax paid to the Government by the processor but not passed on to the consumer.

Mr. Donaldson, however, opined that this would be difficult to prove as perhaps not more than 10 per cent of the vendors paid the tax during the several months prior to January 6th.

Another prominent controller voiced confidence that his store would get a refund from the Government because it had paid the floor tax under protest and had acted to protect its interest whenever the occasion required.

A suggestion was voiced that direct contact with the vendors was much more effective than correspondence in settling the matter of refunds. This exexecutive said his firm had relatively good success in getting its share of the processing tax which the processor had not paid to the Government.

Georgia Group To Meet

(*Continued from Page 190*)

6. Please give your experience to date as to the comparative merits of old style card clothing and straight wire and also metallic card clothing.
7. What is the best method of reworking piecings-in when creeling slubbers and intermediates?
8. Is it conducive to good running work and in the interest of economy to run single process roving in the card room and double in the spinning room in connection with long draft, or is it better to double in the card room and run single roving in the spinning?

Spinning

1. Do you favor running humidifiers in the spinning department over the week-end? Why?
2. What do you consider a naverage variation in yarn sizing and breaking strength on yarns? (State yarn number and grade and staple of cotton.) Do you test under controlled conditions or do you make allowance for the moisture content of the yarn?
3. How do you determine when to change travelers? (Please state your local conditions as to yarn number, size of traveler and ring, gauge of frame, etc.)
4. In changing to long draft spinning, for the same yarns, did you go to a shorter cotton and hold the same break, or continue using the same cotton for a better break, or justify the installation by eliminating a card room process? We are endeavoring to determine what long draft accomplished for you along these lines; if it was a combination of two or more of these, and other objectives, please explain.
5. Please explain the method you use for paying doffers? In this case we are not interested in the amount paid, or the size of the jobs, but in the procedure used for paying the doffers.
6. How do you determine the proper number of frames per overhead or bunchless cleaner? Do these cleaners ever cause gouts? If so, how, and how may they be prevented?
7. What do you find to be the best relative humidity on on long draft spinning? Does the use of overhead traveling cleaners affect this; if so, why? Please state yarn number, hank roving, twist, etc.
8. Please give your experience as to the causes of filling slopghing off, and the corresponding means of preventing this trouble.

Crompton & Knowles Elects Officers

Westchester, Mass.—John F. Tinsley, vice-president and general manager of the Crompton & Knowles Loom Works, was elected chairman of the development board at the annual meeting to succeed the late Albert A. Gordon.

Albert Palmer was elected vice-chairman to succeed Mr. Tinsley. Other officers elected were: President, Dr. Homer Gage; vice-president and general manager, John F. Tinsley; vice-president and sales manager, Irving H. Verry; treasurer, Edward F. Green; assistant treasurer, Fred J. Bowen; clerk, Rufus S. Frost.

Board of directors: D. Gage, Mr. Tinsley, Mr. Verry, Mr. Green, Mr. Bowen, Mr. Frost and George Crompton, all of Worcester; Mrs. George E. Warren and Pierpont L. Stackpole, of Boston, and Henry F. Phelps, of Philadelphia.

Bulletin on Bearings

Norma-Hoffmann Bearings Corp., has issued a new Bulletin F-943—"Textile Machinery Applications of Norma-Hoffmann Precision Bearings."

In this bulletin they have illustrated, by means of cross-sectional drawings, a number of typical applications of precision ball, roller and thrust bearings to meet conditions peculiar to the textile field and representative of problems daily encountered by designers and engineers in their seeking for improved machine performance.

A book of this nature cannot, of course, cover every type of textile machine application. But the problems illustrated will be helpful by way of suggestion and will indicate the extent and diversity of their precision line of 108 bearing series.

Wright and Runkle Named Assistant Managers of G-E Industrial Dept.

J. D .Wright and Karl H. Runkle were appointed assistant managers of the General Electric Company's industrial department, effective February 24th, according to a recent announcement made by J. E. N. Hume, manager of the department. Prior to their promotions, Mr. Wright was assistant head of the industrial department's engineering staff and Mr. Runkle was manager of sales of the department's mining and steel mill section. Both entered General Electric employ as student engineers on the "test" course shortly after their graduation from college.

Mr. Wright, a native of Wisconsin and a graduate of the University of Wisconsin with a B.S. degree in engineering, joined the company in 1909 and, after completing the test course, was transferred to the industrial-control engineering department. In 1915 he went to the industrial engineering department, becoming head of its steel mill section in 1922 and assistant head of the department in 1930.

Mr. Runkle, a native of Iowa, graduated from the electrical engineering course at Iowa State College in 1917. Completing the G-E student engineering course in 1918, he entered the mining section of the industrial department. In 1925 he was sent to Chile and Peru in South America on special industrial work for the International General Electric Company. On his return he resumed work in the G-E industrial department, becoming manager of sales of its mining and steel mill section on January 1, 1928.

Southern Sources of Supply

For Equipment, Parts, Material, Service

Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

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K-A ELECTRICAL WARP STOP

"You can't make anything stick if it is wrong"

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K-A "sticks". K-A must be right.

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MOST IMPORTANT: K-A Electrical Warp Stop is fulfilling every demand imposed by up-to-date requirements of fine, perfect weaving in cotton, silk, rayon, worsted, woolen and other fabrics served by warp stops;—because K-A is right.

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